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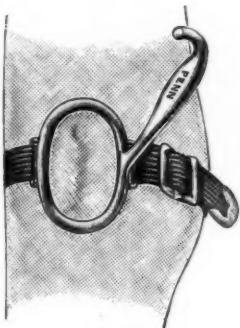
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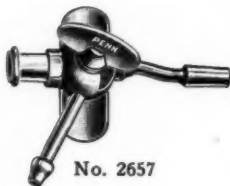
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VOL. XIV

APRIL, 1931

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AORTIC STENOSIS WITH CALCAREOUS NODULES IN THE AORTIC VALVES*

E. L. TUOHY, B.A., M.D., F.A.C.P., and P. F. ECKMAN, B.A., M.D.
Duluth

SIR Dominic John Corrigan¹ first directed interpretation of aortic disease along an intelligent correlation of etiology, pathological sequences and physiological effects. Few great medical scientists have ever had as much acclaim in their own lifetime or retained it so well in the century which has followed.

From the standpoint of etiology it is illuminating to observe that medical science gained little actual working knowledge of syphilitic aortic disease passing from the period before to that after Schaudinn.² Dark field studies gave early diagnostic criteria of syphilis, but nothing new pertaining to mesaortitis or separated aortic valve cusps. In a decade when the other great agency inducing aortic disease—rheumatic fever—is discussed by such a host of the world's acute bacteriologists, and with such varying discordant impressions, it may hearten us to speculate that discovery of a specific agent causing rheumatic fever and its congenitally may give us more scientific than practical satisfaction.

Following the Virchow epoch, the heart and aorta came into the most exacting evaluation of anatomical form and pathological imprint. The roentgenology of today (after Kreusfuchs, Assman and others) has given us the most direct and accurate clinical confirmation in the living for what had previously been so dogmatically outlined by Continental necropsists. Outlines have come into their own, and the clinician's consciousness comes to be more aroused by his eyes than by his ears. Lest, however, we be unfair to Harvey and Laennec, let us hasten to add that English and Dutch clinicians and physiologists

(Mackenzie 1853-1925, Einthoven 1860-1927, Lewis 1881- , and their school) with consummate disregard for Teutonic mensuration of diameters and weights, introduced a flood of information about how hearts worked and aortas withstood, rather than how they looked on pathological specimen trays. There still remains the constant need for a harmonizing of the data accruing from the various methods of approach; none up to date has yielded all the information or all the facts. The American Heart Society well exposes our present dilemma in urging clinicians to utilize an involved technical schema of diagnosis and classification—etiological, anatomical and physiological. The end is not yet: the stage is now set for biochemical and biophysical investigations bearing upon general metabolism; the cardiologist concentrates for the moment upon entities as disastrous as angina pectoris or far reaching as calcium deposition in blood vessel walls. In both there is a fundamental oxygen and nutrient deficiency, and seemingly a chance emplacement determines whether the resultant death shall be immediately of the body as a whole or gradually through loss of dispensable parts. The prolongation of life expectancy is focusing attention upon factors (metabolic, endocrine, hereditary or unknown) other than the well known rheumatic infections and syphilis. Degenerative lesions attributable to senility defy arbitrary rulings as to age: the young man of thirty-eight dies of coronary infarction with only one centimeter of the descending branch of his left coronary involved; the man of eighty-five lives with his aorta and cerebral vessels laid down as if in concrete. In a country or historical period when the average life tenure was twenty to twenty-five (England in Queen Eliza-

*From the Medical Department of the Duluth Clinic, Duluth, Minn.

¹The group of what M. J. Rosenau calls "the whole rubric of the septicemias."

beth's time; portions of India today) aortic diseases would be largely rheumatic and rarely congenital. A period where the tenure stepped up to thirty-six or forty (the United States at the time of the Civil War) would include in addition many syphilitics, with a heavy incidence among the colored race. The conditions of today, with a life expectancy around fifty-eight to sixty, find many living into the eighth decade, and a busy practitioner is confronted with a major problem of aortic disease and heart failure in hypertensives and arteriosclerotics, where neither rheumatic fever nor syphilis registers high in etiological or statistical columns. The term "cardiovascular disease" is too all-inclusive. Life insurance mortality tables indicate the need for intimate analyses of important subdivisions within this universal conglomerate.

Unanimity in the opinion of observers has come in the matter of the lack of causal connection between primary or essential hypertension and syphilis. We know that "arteriosclerosis is only encouraged or somewhat hastened by essential hypertension." Very high grades of atherosclerosis (the senescent type) occur without hypertension. Out of the 70 to 75 per cent of essential hypertensives dying of heart failure fully one-third have coronary disease. Of the coronary group not more than one-third have typical Heberden's anginal attacks. In addition, an increasing number of well authenticated and supported cases are coming to light with typical angina, where the caliber of the coronaries is essentially undisturbed: the extra heart effort in hyperthyroidism and the anoxemia of high grade Addisonian anemia.[‡] We propose to add another instance associated with rigid, calcareous nodules, incapacitated aortic cusps, with aortic stenosis. Gradually it is becoming apparent that Allbutt was thinking squarely when he refused to divorce his attention from the aorta and its sigmoid portion in anginal states. The debate over whether coronary or aortic states product angina pectoris is yielding to the certainty of opinion that both can and do produce it. Keefer and Resnik³ not only reiterated Heberden's dictum that true angina pectoris was a lethal malady, but they directed attention at the same time to the probable reason for sudden death in aortic disease, and to the role played by anoxemia of the heart

muscle in anginal attacks. Those who have followed a goodly number of aortic insufficiency cases need not be told of this tendency to sudden death. The anoxemic heart muscle theory, with ventricular fibrillation as the final chapter, backed up by poor diastolic pressure in the aorta, is now much stressed by commentators.

At to the features involved in the antemortem diagnosis of aortic stenosis, further preliminary comment is not amiss. The aversion to the making of a clinical diagnosis of aortic stenosis is an inheritance from overzealous student days, when every basal systolic murmur meant aortic stenosis. Without decrying the art of Auenbrugger (1722-1809)⁴ or the thoroughness and foresight of Corvisart (1755-1821)[†] and the possibilities of percussion in general, it is fair to state that it requires less skill to show up accurate heart outlines teleoroentgenographically than to judge the same without roentgen aid. These better outlines have done much to clarify the diagnosis of single and multiple valve defects where *inspection* can the better augment and safeguard auscultation. It must be granted that rough, sclerotic valves in the aged, and factors of heart rate, thin chest wall, and many others, in the young, produce rough systolic murmurs at the base; but these hearts, independent of hypertension, heart fixation or kidney disease, are not enlarged. In true rheumatic endocarditis isolated aortic involvement must be very rare. Where rheumatic aortic insufficiency is present with stenosis the former is the dominant lesion as expressed physiologically (pulsus celer, widespread flopping mercury level in sphygmomanometer—all signs of extended pulse pressure) and decides the pattern of the heart outline. Independent of syphilis, and likely independent of rheumatic fever, a third agency makes the aortic cusps so rigid and unyielding as to produce the most extreme grades of stenosis.* It does so extremely gradually, and without either signs of heart infection or early congestive failure. Insufficiency of minor grades invariably accompanies it, but it is always in the background and is entirely secondary to the dominant lesion, which is stenosis. This lesion is coming to be known under the name "calcareous nodules" in the aortic

[†]Corvisart, Jean Nicholas. Auenbrugger wrote his thesis upon percussion probably about 1751. Corvisart (physician to Napoleon and Josephine) popularized this epoch-making diagnostic agency, and has gained much in the appreciation of posterity by refusing to credit himself with its rediscovery.

*Pulsus tardus and characteristic polygraphic tracings are not mentioned here. The finding is only confirmatory and the method is becoming obsolete.

[‡]The list is constantly growing: a miscellaneous group now includes paroxysmal tachycardia, anemia with myxedema, arteriovenous aneurysm and others.

valves. The name of Mönckeberg^{3†} is often linked up with discussion of calcareous changes in the blood vessels of the extremities, and with a discussion of the pathology of the aortic valves.

Clawson, Bell and Hartzell⁶ have very well described the condition which we are reporting. Although their article confines itself to a discussion of the pathological changes found in old valvular defects and has no mention of associated clinical features, those interested should carefully read their description. At a clinic given later by one of the authors (Clawson) he appealed to the clinician to look for these lesions antemortem. This appeal, together with the fact that we have found several such hearts at our regular clinicopathological conference at St. Mary's hospital, caused this possibility to gradually filter through our clinical consciousness, and induced us to venture such a premortem diagnosis. The diagnosis has now been made six times; in three cases we have had autopsy confirmation. In retrospect, we have likely overlooked not a few of these same types. The first impression of well trained internists on introduction to the subject is to classify this lesion as a museum curiosity; to spend an hour equivocating about the cause—grouping it on the one hand as simply an evidence of "an old healed rheumatic valvulitis," or as the result of systemic arteriosclerosis, with special selection of the aortic cusps. Finally, a few deny the clinical existence of the entity because, forsooth, "we have enough etiological and diagnostic confusion without introducing it!" Until something more definite is known concerning the physiochemical conditions behind tissue

infiltration with calcium, the manner of "calcareous nodule" deposits in aortic valves is of infinitely less clinical moment than the fact that such a state can silently produce very large hearts, with thick, dilated left ventricles; that

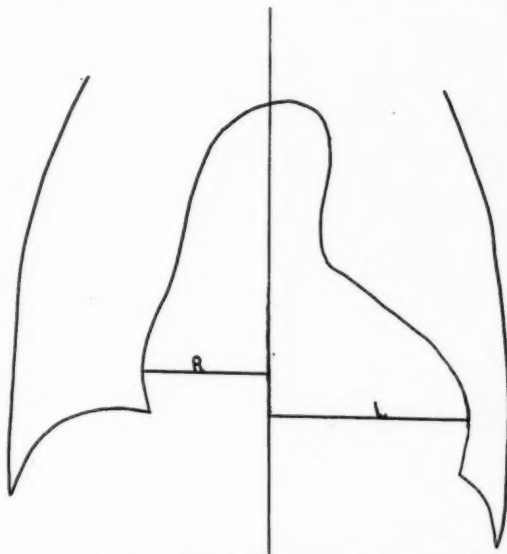


Fig. 1. Case 1. W. H. Teleoroentographic tracing made in December, 1929. Original measurements: right, 7 cm.; left 10 cm.

the process may begin much earlier than the usual atheromatous sequence develops universally; that it is often seen most typically in those beyond the age where those with multiple rheumatic valve defects are likely to reach; that associated with the syndrome there are no inflammatory reactions evident either in vivo or in the aortic leaflets when examined postmortem; that it can produce a situation at the base of the aorta yielding typical angina, without the characteristic narrowing along the course of the coronaries.

The following case summary is submitted in some detail because it well illustrates these features.

CASE SUMMARY

Case 1.—W. H., a male, married, aged 37, was first seen February 23, 1919.

Nothing bearing upon later developments came through an analysis of his own family history. His wife had contracted syphilis from her first husband. This knowledge only obscured the issue as to his illness. Three sisters and one brother were living and well.

When young he had had scarlet fever.

In 1913 he had been ill with typhoid fever for about five weeks, but seemed to fully recover. Ten years

†We have perused his two original articles in Virchow's Archives for Pathological Anatomy and Physiology (the first in 1903, VIII, 171, p. 141, the second in 1904, CLXXVI, 472) with great interest. Mönckeberg's name is most familiar to pathologists in terms of his first article, which emphasized the frequency of media calcification in the extremities in contrast to the intimal changes in important central arteries, chiefly the aorta, the coronaries, and arteries at base of brain. He contends that the processes involved may occur synchronously, but as a rule are distinct and different tendencies. In the second article Mönckeberg stresses the importance of the media in the matter of the calcification of the aortic cusps. He analyzed fully the histological layers comprising the valve cusps, and found a difference between the ventricular surface below and the aortic above, in the latter a preponderance of media-like tissue, with horizontally arranged connective tissue, constituting the main part of the valve and containing few elastic fibers. He states that most people after thirty-five seem to have a thickening of the proximal edge of the aortic valve, leading gradually to palpable and visible yellowish-white areas. The important point is that these begin in the media-like layers. The process continues through fatty degeneration, focal necrosis and chalk deposits, with confluence and distortion. He states that the process may go ultimately to the outer margin of the valve. After the calcareous deposits occur he states that they may cause a deposit of fibrin, which further accentuates the condition and leads to functional valve interference. While the early development obtains only in the aortic component of the valve, later, of course, the other two layers may be distorted, and, as has been stated, these masses can be felt projecting through toward the ventricular side. He finds no relationship between arteriosclerosis, beginning in the aorta, and these lime deposits.

previously he had had some indigestion, with a marked tendency to "water brash about one hour after eating." There was no suggestion of a rheumatic history or its equivalent.

Briefly stated, his immediate complaint was that of indigestion: a discomfort from one to one and one-half hours after meals.

occasional winter colds, but no unusual cough, dyspnea or difficulty until in December, 1928. Although he had to walk only a matter of three blocks, whenever he did so in colder weather or against heavy wind, he experienced pain across the chest, substernal, radiating out toward the left arm. This would disappear if he stopped to rest, but if he persisted it would become a

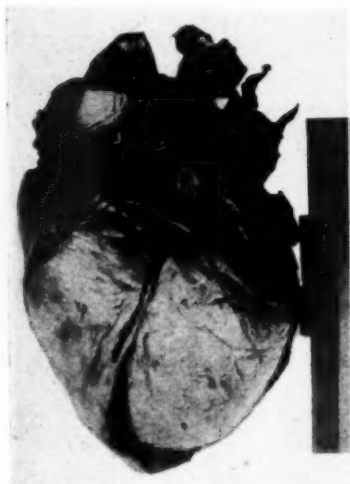


Fig. 2. Case 1. Front view of sectioned heart (1,050 grm. wt.). Centimeter rule at side.

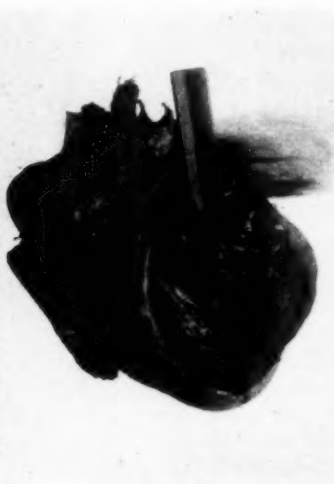


Fig. 3. Case 1. Showing thickness of left ventricular wall.



Fig. 4. Case 1. Same heart viewed from above. Aortic cusps too dark to show detail.

The essential findings after a thoroughgoing examination, including roentgen studies of the gastrointestinal tract, were quite negative except for relatively high gastric acids.

He responded very well to the exhibition of alkalis and frequent feedings.

The features pertaining to the findings of his chest examination were of the greatest significance in the terms of succeeding events: There was a rough systolic murmur, heard best at the base and transmitted up into the neck vessels, with a fairly definite diastolic murmur heard just to the left of the sternum in the third interspace. The systolic murmur was widely distributed and could be heard also to some degree in the back.

Several Wassermanns of the blood were taken, and all were negative. In fact, he had a short period of anti-specific treatment based upon the above history of his wife, and the general supposition was that as an aortic diastolic murmur was present and we could not prove that he had had rheumatism, he probably had had syphilis!

Finally, when seen two months later, he was much improved, and he was catalogued as an instance of rheumatic valvular heart disease, with aortic insufficiency and some degree of aortic stenosis. The heart was then only slightly enlarged, the left ventricle showing the major degree thereof.

He reported later that he worked regularly. He had

grinding, boring, torturing distress. These attacks occurred only on effort.

Examination at that time showed a regular heart, with a pulse rate of 80. The patient had an excellent appearance; no cyanosis. However, examination over his precordium yielded evidence of a very large heart, with a strong systolic thrill felt over the upper chest, and corresponding with this a very loud, rough murmur heard over the entire chest, and very audible in the back. There was in addition a short diastolic murmur heard at the second aortic space to the right and the third interspace to the left of the sternum. There was, however, no drop in the diastolic pressure; the systolic pressure about 150. The heart outline was globular (Fig. 1). The electro-cardiographic evidence was essentially negative except for inversion of the T-wave in Lead I, a ventricular predominance, and some slight evidence of "arborization defect" or block. It was then obvious that we were dealing (and had been from the beginning) with a very high grade aortic stenosis, with a minimum degree of aortic insufficiency. We had in the meantime been "tuned in" to the possibilities of another etiology. Treatment had no effect in reducing his anginal attacks, but they were never severe except under the influence of effort. Up to March 30, 1930, he had no marked evidence of visceral congestion. However, he soon developed extreme dyspnea, and died characteristically of slowly progressive myocardial exhaustion.

The pre-autopsy diagnosis was "calcareous nodules in the aortic valves, with aortic stenosis, cardiac hyper-

trophy, chronic visceral congestion with edema." At autopsy the heart was found to weigh 1,050 grams, with extreme hypertrophy and dilatation and thickening of the left ventricular wall. There was a high grade of stenosis of the aortic valves, with a slitlike opening in the middle, yielding a limited degree of aortic insufficiency. There was confirmation of the visceral congestion as calculated. The mitral valves were somewhat thickened but functionally undisturbed. The aortic valve showed extensive calcification, appearing chiefly on the upper surface, but could be felt from underneath. The edges of the valves were densely adherent to each other except a central portion forming an irregular triangular opening, slitlike in character, with rigid edges. When measured, the wall of the left ventricle was 2 cm. in thickness, and that of the right 0.5 cm. (Figs. 2, 3 and 4). The root of the aorta itself showed only moderate yellowish atheromatous plaques, and the openings of the coronary ostia were not disturbed. The coronary vessels appeared to be somewhat wider than normal at their openings, and, while showing a few yellowish plaques here and there, were thoroughly patent throughout their larger branches. The myocardium, aside from its increase in bulk, seemed little changed.

COMMENT

Clawson, Bell and Hartzell reported fifteen such cases out of a total of 280 cases of non-syphilitic valvular heart disease studied. Touching only upon the main incidents in their description, this case is in general conformity with theirs:

1. Marked thickening and stiffening of the aortic valve leaflets due to calcareous nodules within them.

2. The portions of the leaflets between the nodules are of normal thickness and do not show inflammatory hyperplasia.

3. Union and adherence of the edges of the valve leaflets (the most definite feature involved, indicating the possibility of an inflammatory adjunct in the causation).

4. The nodules project and appear on the aortic surface, but are easily felt from the ventricular surface (Fig. 5).

5. The aorta itself, except for about 1 cm. up from the edge of the valve bases, is singularly undisturbed. (Older clinicians maintained that aortic stenosis shields the aorta from systolic shock; hence conversely the tendency to aortic atheroma in young athletes.)

6. The nodular lesions are singularly unlike ordinary intimal atheroma commonly seen within the endocardium and intima of the aorta.

7. Consulting the original article of Mönckeborg it will be seen that this calcification process is one of media degeneration and invasion. The

etiological and determinative factors are, as yet, speculative. It is different from and independent of ordinary (intimal) atherosclerosis.

8. If death does not supervene from other causes the process can result in extreme degrees of aortic stenosis with enormous hearts.



Fig. 5. Cut taken from reprint of article by Clawson, Bell and Hartzell, because it shows so clearly the confluent calcareous nodules in one of their cases. (Amer. Jour. Path., Vol. II, Plate 40, No. 30. Valvular Diseases of the Heart.)

Case 2.—Since the heart found in this forty-nine-year-old man has been found exactly copied in two other autopsies, all descriptive and analytical detail will be much condensed.

J. H. G., a male, aged 44, was observed between the dates November 29, 1924, and his death, November 26, 1927.

At autopsy he had a 1,100 gram heart, globular in shape, and with colossal left ventricle thickening. The same extreme degree of aortic stenosis was seen, with only a slitlike fissure in the center. Curiously, many attendants who saw him fell upon his obvious "diastolic aortic murmur," and were loath to abandon the possibility (at his age) of syphilis, despite his negative history and many negative Wassermanns.

His blood pressure received a good deal of attention, especially in view of the fact that the diastolic pressure never dropped below 100; the systolic advanced near his demise to about 200. His "precapillary arteries" studied postmortem were not those of primary hypertension.

Clinically, it was the general impression that he had "rheumatic endocarditis with aortic insufficiency and stenosis." Suffice it to say that the autopsy showed some fibrotic areas in the myocardium (he died with increasing cardiac dyspnea and visceral congestion), his

aortic intima was smooth, soft, and free of atheroma. There were a few yellowish spots seen on the wall of the traced out coronaries, but their patency was not disturbed. The other valves of the heart were normal.

Case 3.—In contrast to these two men, Mrs. L. St. M., aged 63, came to autopsy with the same type of

tory evidence). Further, that the evidence of insufficiency is minimal, while that of aortic stenosis is maximal.

Case 4.—J. V., male, aged 47, was without previous history of specific or non-specific infection. He was

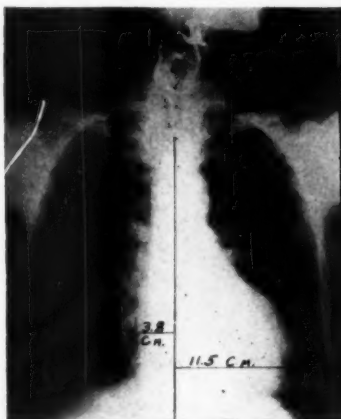


Fig. 6. Case 4. J. V. Chest film, six feet.

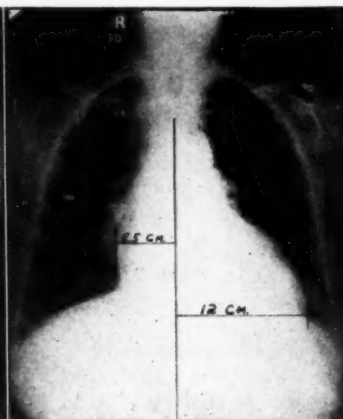


Fig. 7. Case, Mrs. P. W. Six feet, X-ray chest film.

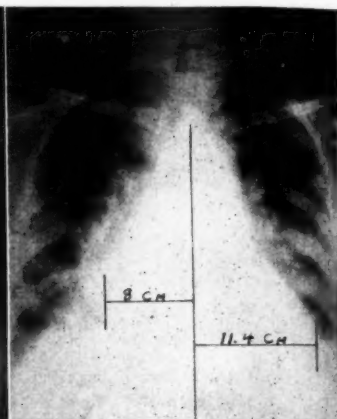


Fig. 8. Case 6. Mrs. A. H. Measurements distorted since film was taken at bedside, short focal distance, and hilus shows abundant evidence of venous congestion.

heart, weighing 650 grams (heavy, indeed, for a woman).

Little is known about her clinical story except that she had had "heart trouble for twenty years." There had been a number of decompensations, and death supervened, with copious spitting of blood, and there were numerous hemorrhagic infarcts.

Here, also, the process was confined entirely to the aortic valves.

We have three other patients under observation upon whom we have made the diagnosis of such aortic valves. It is self-evident that the diagnoses can as yet be largely "impressions," but we feel that with the definite globular heart, with decided left ventricular enlargement; with the rough systolic murmur, and the corresponding thrill[†] at the base transmitted into the neck; a short diastolic murmur in the usual aortic areas of transference, and a high or maintained diastolic pressure; with a history as negative for syphilis and rheumatic infection as we can ever depend upon—we fully expect autopsy confirmation, if such is ever permitted. In all, note that the evidence of aortic insufficiency is definite (a lesion most classically constant with its auscultation

seen in October, 1929, with a definite cardiac condition. For eighteen months he had had substernal pain, palpitation and dyspnea on exertion. On occasion there had also been a harsh, non-productive cough.

The chest examination (briefly outlined) is noted on his chart as follows: "Percussion shows a definite left ventricular hypertrophy, without any evident enlargement of the aortic arch. Fluoroscopic inspection brings out the definite globular heart outline, with a maximal left ventricular increase (Fig. 6). Palpation reveals a fine thrill at the third interspace to the right. This thrill is increased after exertion. On auscultation a very rough, grating, blowing systolic murmur is heard best at A2, but is transmitted over the entire precordium and up into the neck. At the third left interspace and at the lower end of the sternum, slightly to the left, there is a fine, short diastolic murmur. At the base this somewhat displaces the second tone. The blood pressures were 150/70. An electrocardiogram showed an inversion of the T-wave in all leads, and some arborization defect (partial block)."

Case 5.—Mrs. T. W., aged 72, the mother of ten children (nine living and well), presented herself first in June, 1930.

She admitted no previous illnesses nor operations; nothing to indicate a rheumatic or luetic infection.

For four years there had been increasing precordial distress, lately becoming more severe and increased on exertion. The two severe spells were epigastric, accompanied by nausea and vomiting, and twice called for hypodermic relief. Invariably, however, the attacks were associated with a choking sensation, coming on with dyspnea and palpitation. Many such attacks came

[†]It seems these thrills are easily overlooked or their presence minimized. In earlier stages they may not be felt over a very large area. Thus, in our case, the earlier observation entirely omitted any statement as to a thrill. Since this became so all-pervading later it is folly to assume that slight degrees of it had not been overlooked.

on of late without pain. There was much shortness of breath on exertion.

A brief summary of the chest findings is hereby abstracted: "Left ventricular enlargement, with the percussion border 12.5 cm. to the left of the midline in the fifth interspace (Fig. 7). On auscultation a slight systolic thrill heard over the precordium and up into the neck, synchronous with a loud, rumbling systolic murmur of like distribution. In the third interspace to the left of the sternal border is a faint, sharp, diastolic murmur. There was normal sinus rhythm. The blood pressures 140/70. There was no edema nor obvious visceral congestion."

A Graham-Cole dye test showed poor filling and sluggish emptying of the gallbladder. The gastrointestinal tract was otherwise roentgenologically negative.

There is a fair presumption here that the heart condition has not accounted for all the distress, particularly the epigastric tenderness and decisive colic. Conversely, the gallbladder condition could not possibly account for the heart outline and the determinative data pertaining to the aortic valves.

Case 6.—Mrs. A. H., aged 62, was seen first in July, 1930. She presented the same negative history as the previous cases. She had been treated previously for a year for heart distress and a tendency to dropsy. Her physician had stressed with her a high systolic blood pressure.

The chest examination again showed the characteristic heart outline (Fig. 8). We found the loud, grating, systolic murmur (heard best at the base and transmitted up into the neck), a soft, short, diastolic murmur heard at the second aortic space to the right and the third interspace to the left of the sternum. There was a totally irregular pulse incidental to auricular fibrillation.

Her blood pressures for the period of hospital observation of two weeks varied between 180/90 and 160/100.

CONCLUSIONS AND SUMMARY

1. Postmortem and clinical cases are presented of greatly enlarged hearts with isolated pathology in the aortic cusps inducing high grade aortic stenosis.

2. Associated with this pathology there has been constantly found an associated (secondary) easily demonstrable aortic insufficiency.

3. The cusp distortion was due to nodular calcium deposits. Mönckeberg's ideas as to the manner of the deposition are discussed.

4. This lesion and resulting syndrome can induce typical angina pectoris attacks in which the coronaries are undisturbed.

5. A discussion is interpolated which emphasizes the importance and value of careful attention to heart outlines and (in clinical cases) presumptive weights. The idea of lifting the ban on the diagnosis of aortic stenoses in the absence of multiple valvulitis and a rheumatic history is suggested.

6. Since no valve lesion can cope with aortic stenosis in thickening and enlarging the left ventricle there is incentive to investigate such very large hearts for determinative evidence of that lesion.

7. Its etiology can be found in *calcareous nodule deposition in aortic cusps*.

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OPINIONS OF 470 PHYSICIANS IN REGARD TO THE ADVANTAGES AND DISADVANTAGES OF USING BRAN AND ROUGHAGE*

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LAST August, *Everybody's Health*, the Journal of the Minnesota Public Health Association, published an article in which I asked for a little more thoughtfulness in the prescription of bran and other forms of roughage. I reminded physicians and dietitians that one of the two reasons for giving bran is that it is absolutely indigestible, and I suggested that this fact be thought of more often when attempts are being made to treat constipation in persons who are not strong. If one is sure that the patient has the digestion of an ostrich one can, perhaps, dump into his stomach large quantities of bran, dried seaweed, vegetable fiber, seeds, or cold, indigestible grease, and expect him to handle it all without distress. Examination of the stools later may show that digestion has been much interfered with, but if the patient is sufficiently insensitive he will be unconscious of any abnormality, and if his constipation is relieved he will go on his way rejoicing, and insisting that all his friends do as he has done. But let one of these friends happen to have a weak, easily disturbed digestion, or a bowel in which there are narrowed or highly irritable places, and he may find himself unable to handle the extra mass of indigestible material. In this case there will be flatulence, intestinal unrest and discomfort, and perhaps some loss of weight.

The second reason for the giving of bran and roughage is the delusion or obsession that it is only by eating these substances that one can secure all those vitamins, salts, and mineral elements that are essential to life. Actually, anyone who knows anything at all about the subject knows that these dietary constituents can be obtained in large amounts and in more assimilable form from many other foods; in fact, if it is desirable, they can even be obtained from the drug store.

I fear that the future historian of medicine is going to be somewhat puzzled when he comes to write up the story of the vitamin mania of the twentieth century. He will wonder what on

earth could have so frightened the dietitians that they should have behaved each day as if a moment's relaxation of vigilance would plunge all their (adult) patients into the throes of scurvy, beri-beri, pellagra, war edema, and xerophthalmia. Perhaps one reason why they fear these diseases so terribly is that they have never seen them and do not know what they are. Similarly, most people today are horrified at the thought of leprosy because they haven't the least idea what it is.

To show how rare the vitamin deficiency diseases are in America I need only say that in twenty years of consultant practice I have seen only one case of beri-beri (due in part to lack of Vitamin B), and one case of scurvy. I may have failed to recognize some cases, but even at that, these can hardly be diseases which everyone should be worrying about during every hour of the day. There are some physicians, dietitians, Red Cross workers, pediatricians, and others who must worry, but they are the ones who take care of the underfed children of the poor, old half-crazy recluses and men out of work who "batch" in cheap hotel rooms or in backwoods ranch houses, fussy old women who live on tea and toast, men and women with ulcer or colitis who try to live for months on milk and eggs, starving farmers in the drought-stricken areas of the South, winter-bound fishermen on the Labrador Coast, inmates of jails and poorhouses, and particularly the explorers who have to live entirely on preserved food. All such persons who live abnormally are in danger, but, so far as I can see, most of us who have a fair income and who eat as our fellows do can have little to worry about.

Whenever I have been so unfortunate as to get into an argument with a whole-wheat enthusiast of the type who would gladly legislate white bread out of existence, I have met this argument: "But, if you don't eat whole-wheat bread, where are you going to get your vitamins and your iron?" Even professional dietitians have tried to floor me with this question, forgetting for a moment what they must have known, that

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there are many other and better sources of vitamins and iron besides bran. Furthermore, strange as it may seem to the average dietitian, there is no shadow of an excuse for giving roughage when one wants to supply vitamins or chemical elements. One can get more than enough Vitamin A in butter, more than enough of the two B's in a little yeast or extract of wheat kernel (obtainable in a drug store), more than enough C in a little orange juice, and more than enough D in a little tablet of concentrated cod liver oil or irradiated ergosterol. Iron can be obtained in many foods besides wheat and spinach, and, if desired, can be supplied in the form of pills, just as they are now supplied in the standard salt mixture given to the rats in research laboratories. Even the green chlorophyll of plants can now be obtained in tablet form so that there is no real need for the appearance each day of spinach on every sick-tray in every hospital in the land.

What I ask of dietitians is that when they are trying to help patients with a poorly functioning digestive tract, one which for a time should be rested and treated kindly, they should give food which is chosen primarily for its digestibility and palatability and only secondarily for its vitamin content. Actually, in most cases, as when a patient is going to be in the hospital for two or three weeks after an operation, it is only a thoughtless or ignorant person who would worry about the vitamin content of the diet. Everyone who eats sensibly has enough vitamins stored in his body to tide him over a few weeks or even months of semi-starvation.

In order to obtain some idea of the views and practices of physicians in regard to the use of bran, and also of their experience with it, the Public Health Education Committee of the Minnesota State Medical Association sent out a large number of questionnaires to physicians all over the United States. The 470 answers that were received have been tabulated in the editorial office of "Everybody's Health," and the summary and the returned sheets have been turned over to me for comment.

Unfortunately, as everyone knows who has ever attempted to answer a questionnaire of the type sent out, it is difficult to make even a good guess as to his experience or his impressions. When, months ago, I tried to fill out the blank sent me, I felt in somewhat the mood of one of

Minnesota's ablest women physicians who wrote on the back of her paper: "I think the formulating of this questionnaire and the answering of it is a laughable waste of time. I am answering questions vaguely . . . my statements based on impressions only and influenced by my opinions of what the answer ought to be. I don't *know* a single fact. Now, I feel better after getting that protest out of my system. This seems to me to be no way of getting at knowledge." But with all this handicap I am forced to conclude as I look over the answers that the inquiry has been worth while, and that it has given information of decided interest and value.

Always, of course, with any questionnaire it is impossible to determine whether or not the opinions of the small group who filled out the blank are representative of those of the larger group who dropped it into the wastebasket. Did the men and women who answered do so because they felt a crusading interest for or against the topic discussed? I do not know. What I would suspect is that the few physicians who take time to answer questionnaires are, for the most part, the ablest, the busiest, the most scientifically minded, and the most conscientious in the community; and actually, as I look over the returned blanks I find the signatures of scores of the ablest medical teachers and practitioners in America.

For a moment it was somewhat surprising to find so many of these men expressing themselves as strongly against the use of bran, but then I remembered that it is not the medical profession that has been leading the crusade for the use of more vitamins and roughage; this fight has been waged largely by lay women, amateur dietitians, self-appointed guardians of the public health, and cranks of all kinds.

A number of the physicians who answered made note of the fact that they formerly prescribed bran but later turned strongly against it. Forty per cent said that they never prescribe it, and 34 per cent prescribe it only occasionally. Similarly, 28 per cent do not prescribe whole wheat bread, and 29 per cent prescribe it occasionally. Fifty-seven per cent, when they do prescribe whole wheat, do so because they wish to add roughage to the diet and 41 per cent prescribe it mainly for its vitamin content. There is, of course, some overlapping in the two groups, that is, some men prescribe it for both reasons.

I was interested to see that so many phy-

sicians have found that the addition of bran and roughage to the diet will relieve only a small percentage of the patients with constipation. Many of the doctors commented also on the fact that bran may relieve for a time and then fail to have any effect; the bowel seems to become accustomed to the extra stimulus. Only two of the physicians who answered were really enthusiastic about the use of bran for constipation; one was from Arkansas and the other from Michigan; the man from Battle Creek admitted that the substance would relieve probably only from 50 to 70 per cent of the patients with simple constipation. I noted that he left unanswered the question: Have you ever noticed unpleasant results from the use of bran?

I was struck by the letter of one physician who, like many of our profession, amuses himself and gets rid of his spare cash by running a stock farm. He said that it has long been known to stablemen that the horse, even with his powerful digestive tract which has been devised especially for the handling of rough foods and crushed seeds, does not do well if given much bran. He thought that if he had had to stop giving bran to horses, many of us should stop giving it to sick men and women. A number of physicians recorded the observation that many persons who for a time tolerate the use of bran later get into trouble and suffer with indigestion.

I was surprised at the number of physicians who expressed themselves as being strongly opposed to the use of bran. For instance, the president of the American Medical Association (an experienced gastro-enterologist) wrote: "For ten years I have not permitted the use of bran in any family under my direction." I was not surprised to see that three-fourths of the physicians have observed that bran will produce indigestion and flatulence. As I would expect from my own experience, only a few reported cases in which there was loss of weight and still fewer had seen bran produce intestinal obstruction. A number of physicians who see many patients with diabetes, commented on the tendency of bran to produce rectal impaction. One professor of medicine wrote that in his clinic they call it "bran block." A few physicians remembered having seen rare cases of intestinal obstruction due probably to the impaction of bran above a stricture or a carcinoma.

Some physicians reported cases in which inflammatory processes in the bowel appeared to

follow the use of bran, but the more thoughtful ones pointed out, what I think is true, that it would be difficult to say of a particular patient whether or not there was any connection between the use of bran and the presence of enteritis or colitis.

Most of the physicians felt that the propaganda for the wide use of roughage has been definitely detrimental to the public health and comfort, and many expressed themselves strongly on the subject. They pointed out that much of this propaganda has been fostered by laymen who have something to sell, and by faddists and cranks who possess neither good judgment nor adequate information. Practically everyone who answered the questionnaire condemned the tendency of school teachers, instructors in home economics, and amateur dietitians to prescribe rough diets for everyone.

Eight per cent of the physicians remembered having seen cases in which they thought cancer of the bowel might have developed as the result of the ingestion of bran, but some of them admitted that they had no real knowledge on the subject.

The part of the questionnaire which interested me most was that in which the physicians reported the extent of their experience (in adults) with diseases due, or supposed to be due, to avitaminosis. Thirty-two per cent said that, so far as they knew, they had never seen an instance of such disease (in adults); 49 per cent had seen a few cases, and 16 per cent had seen a number of cases; 3 per cent did not answer the question.

I was particularly interested to see the answers of the many men with whom I am acquainted and who I know have good judgment and wide experience. Most of these men stated that in the course of years they have seen perhaps two or three cases of scurvy and one or two of pellagra. Some have seen a few cases in the county hospital but none in private practice. A professor of medicine at Harvard wrote on the back of his blank that he had never seen adults with definite vitamin deficiency "unless pernicious anemia is included, and unless pellagra is later proved to be due to a vitamin deficiency." "To me the remarkable thing among adults, to whom my work is confined, is that there is so little, in fact, almost no evidence that vitamin lack plays any part in the illnesses that we see. It seems entirely safe to advise adults to forget vitamins entirely when they are living in the temperate zone

and when they are economically able to eat an average diet such as is dictated by hunger and by the sense of taste."

A former professor of medicine at Johns Hopkins answered that he has seen "pellagra? and scurvy occasionally." A teacher of medicine wrote, "I see two types of deficiency, one, a rare, definite case of pellagra or beri-beri or scurvy, and, second, many adults with chronic disease who have profited by a diet rich in all the vitamins, particularly patients with pernicious anemia and chronic arthritis. I cannot determine whether this constitutes a real deficiency of a mixed sort, or whether it is only an incidental finding and one which can be found with equal frequency, perhaps, in normal individuals. The fact that good results follow from forcing vitamins does not necessarily prove an etiological relation." He adds very wisely, "This is a worthy cause you are promoting, but one must take care that propaganda against propaganda does not also end in being unwarrantedly emphatic."

There are, as one would expect, a number of physicians here and there who have become enthusiastic about avitaminosis and who admit, more or less apologetically, that they are now treating all sorts of diseases with high-vitamin diets. Another professor of medicine at Harvard, a man who is particularly interested in problems of nutrition, wrote that he frequently sees cases of beri-beri, pellagra, and scurvy. He is, however, so well known in his field that patients of this type probably come to him from all over the country. The writer of what is perhaps the best textbook on dietetics in the English language wrote in answer to question eight, "Do you ever in adults see cases of definite deficiency?"—"Probably yes, but extremely indefinite." Incidentally he feels that the propaganda for roughage has been highly detrimental.

As was to be expected, many physicians noted that when they do see vitamin deficiency diseases they see them in the very poor, or in the semi-insane, in cranks and faddists who live on freak diets, in those who are inclined to live on alcohol, in persons with anorexia nervosa, in old persons who live alone, in women who try to reduce unwisely, and in persons who live for a long time on restricted diets designed to cure ulcer, nephritis, or diabetes. One physician in New York wrote that in all the years of his practice he has seen but one case of scurvy, and that was in a

man who lived on nothing but bread and tea. A physician in Texas reported having seen a few cases of scurvy among ranchers who live out in the mountains and who depend largely on canned food.

I was interested to see that a physician who has had an enormous experience with patients with arthritis, answered question eight in regard to the frequency with which deficiency diseases are seen, with the statement, "Not clearly." One of the world's leading experts on diabetes answered, "No." A professor of medicine in Chicago wrote, "Yes; impression only, no definite knowledge." Another professor of medicine in Chicago wrote: "Rare in private practice; occasionally in the county hospital." Another able clinician said: "I think I do rarely, as in cases of ulcer." Another professor of medicine whose particular interest is gastro-enterology wrote: "Rarely, and then among the poor. I have seen two cases develop during treatment for ulcerative colitis." Another professor of medicine, who is a national authority on problems of nutrition, wrote, "Very rarely." One physician unknown to me, but evidently an enthusiast, wrote, "Daily, all types."

Another physician who has written a textbook on gastro-enterology wrote: "Vitamins are overdone and over-emotionalized at the present time. I do not believe that I can recognize this condition if it exists." One of the ablest physicians in the Northwest wrote that he has seen one case! Another physician, who has had perhaps the largest experience in internal medicine in the Northwest, remembered having seen three cases of pellagra. One of the ablest and busiest internists in Minnesota wrote, in his characteristically vivid way: "The rarest thing in our practice. In Minnesota it is almost impossible for an adult who is not a 'nut' on diet to miss enough of the needful vitamins. The case for babies and young children, of course, is different." One of his able partners, answering the same question, said, "Not specifically certain." It interested me also to see that those physicians at The Mayo Clinic who answered the questionnaire reported, out of their large experience, only an occasional case of scurvy or pellagra.

As one would expect, most of the reports of disease due to lack of vitamins came from the South, and particularly from the poorer districts of the South, where pellagra is endemic. Even

from there, however, it is noteworthy that some physicians reported seeing much pellagra, while others said it was rare. There was only one physician who took a strong stand against my statement that vitamin deficiency diseases are probably rare, but he is from the South, and he admits that he is classifying as avitaminosis any disease in which the patient improves on a diet rich in vitamins. He said, "I have seen hundreds of cases in this category, where general health was markedly improved by the addition of vitamins. Pellagra exists often in this class. In my opinion Alvarez is all wrong. The publication of such a doctrine, which is contrary to the views of those who have done the work, seems harmful to me." Most of the physicians, however, seemed to feel as I do, that although we are probably missing cases of dietary deficiency disease and should be more keenly on the watch for them, we must keep our feet on the ground and must not soar off with the faddists into realms of fancy.

To sum up: this questionnaire has shown clearly that the physicians of this country are not enthusiastic about the use of bran. They realize that it can relieve only a certain number of patients with constipation, and in them the relief is often temporary. Most of the physicians report also having seen indigestion and flatulence caused by the use of bran and other rough foods. In fact, many of them have seen so many instances of this that they now refuse to allow any of their

patients with indigestion to take these foods. Almost all agree that the present propaganda for the addition of roughage to the diet has been more harmful than beneficial, and almost to a man they condemn the practice of school nurses and others who prescribe the same rough diet for everyone and who offer prizes for the child who can eat the most spinach.

Finally, I think we can say that, except for a handful of enthusiasts who are riding their avitaminosis hobby rather hard, the physicians of the United States are very rarely seeing in adults any disease which they can ascribe with certainty to a deficiency in diet. Only one exception need be made and this is for those physicians in the South who practice among the poor. Many of them are seeing cases of pellagra, scurvy, and general undernourishment.

It would seem, therefore, that unless times ever get so hard that men and women all over this country come close to the edge of starvation, our hospital dietitians can rest easy, and they can with safety stop stuffing their transient guests with foods rich in vitamins. The time may even come again when a six-months-old infant can nurse happily at his mother's breast without having to stop to drink orange juice and cod liver oil, and to eat spinach. As in the good old days, his mother will eat these substances for him, and perchance, if she doesn't like them overmuch she will get a cow to eat them for her so that she can get the necessary concentrates in the cow's milk.

SOME POINTS IN THE DIFFERENTIAL DIAGNOSIS OF CHEST DISEASES*

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IN ancient times most chest conditions were known as consumption or phthisis. There were many kinds of phthisis; in fact as late as the time of Sauvages, 1706-1767, this disease was classified into twenty different kinds. Morton reduced the number to sixteen, Portal to fourteen and Bayle, living from 1774 to 1816, reduced the number to six. Bayle and Laennec were close friends, but Bayle died of tuberculosis the year Laennec presented the stethoscope (1816). With this new device for examination, with a splendid training in anatomy and pathology, and with a wide experience at the post-mortem table, Laennec changed the interpretation of physical signs and symptoms of diseases of the chest. He was able to take out of the classification of phthisis much that it formerly contained. He worked out carefully such diseases as gangrene, pneumonias, edema, emphysema, and atrophy of the lungs. He took melanosis from the category of pulmonary phthisis, considering such cases as due to anthracosis, or cancer. He also took cancerous phthisis from pulmonary phthisis. Of course, many of his diagnoses were not made before death, but were based upon autopsy findings.

In the century that has passed since Laennec's death, we have had many developments which have facilitated work in differential diagnosis in the living body. Inoculation methods had been attempted a number of times, but in 1843 Klenke found that he could transmit consumption from persons to animals by inoculating into the bodies of animals tuberculous material from the postmortem table. His work was confirmed and carried much further by Villemin and later by Conheim. In 1882, Koch announced the discovery of the tubercle bacillus and since that time the finding of this organism in suspected material from patients has been an extremely valuable

point in differential diagnosis. Other aids in diagnosis such as the patient's history, physical examination, the tuberculin test, the X-ray, the bronchoscope, the microscope and iodized oils are doing much to differentiate non-tuberculous from tuberculous lesions.

From the patient's history one can frequently obtain very definite leads. The occupation is of great importance in certain diseases; for example, a person who works about a farm, particularly with farm animals, may be suffering from actinomycosis or aspergillosis. The granite worker, the coal miner and those in other dusty occupations may be suffering from pneumoconiosis.

Occasionally when no cause can be ascribed to an area of disease in the lung a careful history taker may elicit the fact that shortly before the disease began the patient suffered from a severe attack of choking, perhaps while eating a meal. In such cases the aspiration of foreign body must always be considered.

Following pneumonia, pulmonary abscess and empyema are very common complications, as illustrated by the following case:

O. P., a female, 18 years of age, developed pneumonia and nine months later a diagnosis of tuberculosis was made. She then complained of persistent cough, offensive sputum and loss of weight. She went to a sanatorium for the tuberculous and after three months no evidence of tuberculosis had been found. She was discharged with a diagnosis of pulmonary abscess at the left base.

When we first saw her on the advice of the sanatorium staff artificial pneumothorax was instituted. A large adhesion prevented complete collapse of the left base. Thoracotomy was performed and the adhesion was severed. Artificial pneumothorax was continued two years.

It is now nine years since the pneumothorax was instituted and she is in excellent health.

Not all cases of pneumonia are detected, particularly when serial X-ray examinations are lacking. The person who has an abscess formation of the lung will sometimes give a history of having had a severe attack of influenza with high fever for a few days. In many of such cases the patient actually had pneumonia which

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was undetected. Areas of unresolved pneumonia are also often observed. The patient must be questioned as to any operative procedures which preceded the development of pulmonary disease. Was a tonsillectomy or any dentistry done just before the disease appeared?

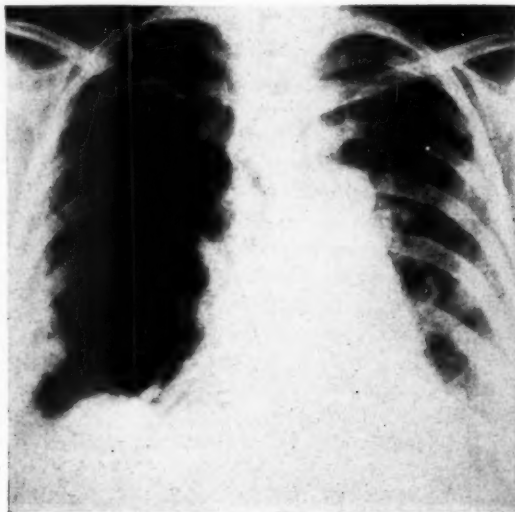


Fig. 1. Roentgenogram of the chest of a woman of forty-seven years, showing spontaneous pneumothorax on the right side with metastatic malignancy involving the left lung.

perresonance was present in the right axilla where the breath sounds were absent.

The X-ray examination showed a partial pneumothorax at the right base with a small amount of fluid. In the left upper lobe was a shadow strongly suggesting tuberculosis. Subsequent studies, however, led to a diagnosis of metastatic malignancy of the lung (Fig.



Fig. 2. Roentgenogram of the chest of a man of sixty-seven years, showing metastatic carcinoma involving both lungs.

History of exposure to disease, particularly to tuberculosis, is of considerable significance. In persons coming from homes where tuberculosis has been known to exist this disease must be considered. One should also bear in mind that a history of exposure to pneumonia is significant. On one occasion we saw five cases of pneumonia develop simultaneously in one family after the death of the father from that disease.

A history of malignancy in some other part of the body, even in one thought to have been operated upon successfully, is important. The following case illustrates this point:

C. F. B., a female, 47 years of age, five years before our examination, had had a pelvic tumor removed. Three years later she began to complain of shortness of breath and cough. Three months before we saw her, 500 c.c. of clear fluid was removed from the right pleural cavity. There had been no loss of weight or strength.

On examination dyspnea was present on slight exertion. Her respiratory rate was 25. There were palpable lymph nodes in the left axilla 2 cm. in diameter.

The chest examination revealed dullness at the right base and bronchial breathing over the same area. Hy-

1). Deep X-ray therapy was administered, but death occurred about eighteen months after our first examination.

A history may lead one to suspect carcinoma in some other part of the body, although the most marked present symptoms are referable to the lungs, such as in the following case:

C. A., a male 67 years of age, complained chiefly of dyspnea, but the history revealed the fact that there had been some pain in the epigastrium for one year. He complained of loss of weight and appetite, weakness, belching of gas and occasional vomiting for three months.

On physical examination he was found to be dyspneic, weak and emaciated. The lymph nodes were palpable both in the supraclavicular fossa and in the left axilla. There was a palpable mass in the left upper quadrant of the abdomen.

X-ray of the chest and gastro-intestinal tract revealed evidence of gastric carcinoma with metastases to the lungs and the mediastinum (Fig. 2). Death occurred two months later.

One must not overlook the fact that primary carcinoma of the lung occurs more frequently than we formerly believed. The following case is a good example:

E. P., a male, 34 years of age, had been in excellent health until four months before the first examination. Then he complained of pain in the right chest, loss of appetite, strength and weight, shortness of breath and fever ranging from 99° to 101° F.

The examination revealed limitation of movement on the right side, flatness in the right axilla and dull-

this involvement was a non-tuberculous abscess. Bronchiectasis was present in the right lower lobe.

Nasal polyps were removed, submucous resection and maxillary sinus "window" operations were performed. Three abscessed teeth and two carious teeth were removed.

With the removal of these foci of infection two years

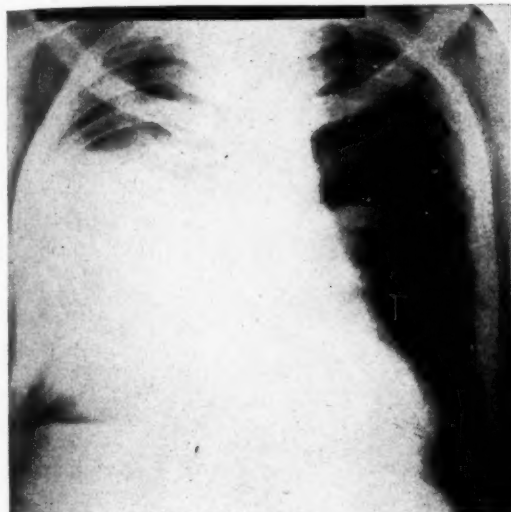


Fig. 3. Roentgenogram of the chest of a man thirty-four years. Postmortem examination showed primary carcinoma of the right lung with metastasis to the regional lymph nodes.

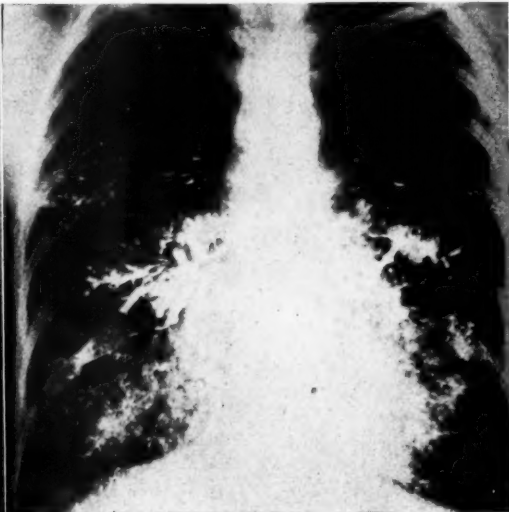


Fig. 4. Roentgenogram of the chest of a woman of thirty-one years after lipiodol had been introduced into each bronchial tree. Case of bronchiectasis.

ness over the right chest anteriorly. There was increased whispered voice in the right axilla. No râles were heard. The liver was 3 cm. below the costal margin, but no other abnormal abdominal signs were elicited. There was marked clubbing of the fingers.

The X-ray examination revealed what appeared to be a primary new growth arising in right lung (Fig. 3). Deep X-ray therapy was administered.

The postmortem examination revealed carcinoma of the right lung with metastases into the bronchial lymph nodes on the right side.

Foci of infection of the mouth and upper respiratory tract are often a cause of septic conditions in the lungs, as shown in the following cases:

G. L., a male, twenty-three years of age, for six years had frequent colds and cough with profuse expectoration of purulent odorous material. At times he noticed a numb feeling of the upper jaw. X-rays of the teeth were negative on two occasions.

The chest examination revealed increased whispered voice over the right apex and moderately coarse râles at the right base posteriorly.

The nose and throat examination revealed nasal polyps and bilateral maxillary sinusitis.

The X-ray examination of the chest showed evidence of fibroid tuberculosis of the right middle lobe, but subsequent examinations have led us to believe that

ago the chest symptoms have gradually disappeared until now he only coughs and expectorates with an occasional "cold."

T. W., a male, forty-two years of age, complained of cough since having ether anesthesia three years before we first saw him. He coughed violently and expectorated profusely. The sputum was purulent and offensive in character. He had changed climate believing tuberculosis to be the cause of his symptoms.

The examination revealed moderately coarse râles over the bases of his lungs, more marked on the right side.

The nose and throat examination revealed bilateral maxillary sinusitis.

The X-ray examination showed evidence of bronchiectasis in both lower lobes, more extensive on the right side.

Permanent openings were established in both maxillary sinuses with great relief of symptoms.

There are no pathognomonic symptoms referable to the chest. Pleurisy may be caused by many conditions, but pleurisy with effusion not preceded by or accompanied by acute respiratory disease is very often due to tuberculosis, perhaps so in ninety to ninety-five per cent of the cases. Hemoptysis is also caused by many conditions. At one time we believed that ninety-five

per cent of the pulmonary hemorrhages are due to tuberculosis of the lungs. Observations have shown that patients with bronchiectasis are subjected to hemorrhage more frequently than those with pulmonary tuberculosis. The following cases are good examples:

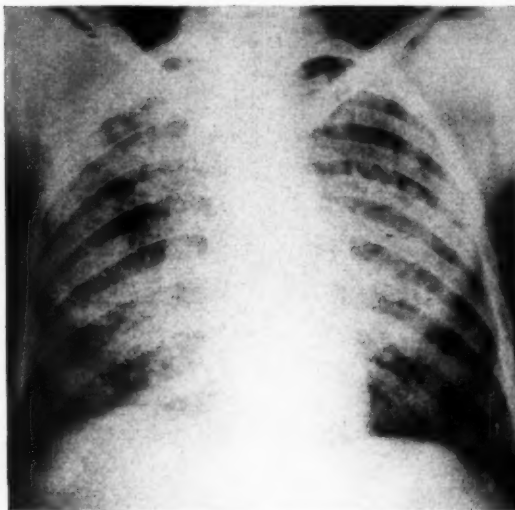


Fig. 5. Roentgenogram of the chest of a man of thirty-two years of age. This shows miliary tuberculosis, involving both lungs. There is an old lesion with cavity formation in the right upper lobe.

A. G., a female, thirty-one years of age, for ten years had a productive cough with profuse, purulent, offensive expectoration, measuring about one cupful a day. One year ago she had a hemorrhage of one-half cup of bright red blood. In the last two months she has had four frank hemorrhages. Ten years ago she had acute rheumatic fever and four years ago she noticed swollen ankles. There has been no swelling since.

The examination revealed a thin, weak and toxic appearing female, with limitation of chest movements. Dullness and râles were present over the base of both lungs.

Her sputum was negative for tubercle bacilli on many examinations.

The X-ray examination following the introduction of iodized oil showed bronchiectatic cavities (Fig. 4).

The paranasal sinuses were clear.

Diagnosis: Bronchiectasis, bilateral.

G. G., a male, forty-two years of age, two weeks after a tonsillectomy performed two years before our first examination, spat up blood and ran a low grade temperature over a period of several weeks. He had frank pulmonary hemorrhages eight different times and had a continuous cough with expectoration. About fifteen months later he had a bronchoscopic examination which revealed bronchiectasis of the left side. Aspiration of the bronchiectatic cavities gave him definite relief. Three months later he began to cough and run a fever. Two months later he had such a severe hemorrhage

that he was almost exsanguinated. Artificial pneumothorax was administered on the left side, which immediately controlled the hemorrhage, cough and fever. Three weeks later he developed a bronchial fistula into the left pleural cavity with a resulting empyema. The fistula was valve-like in character, increasing the pressure in the left pleural cavity to such an extent that

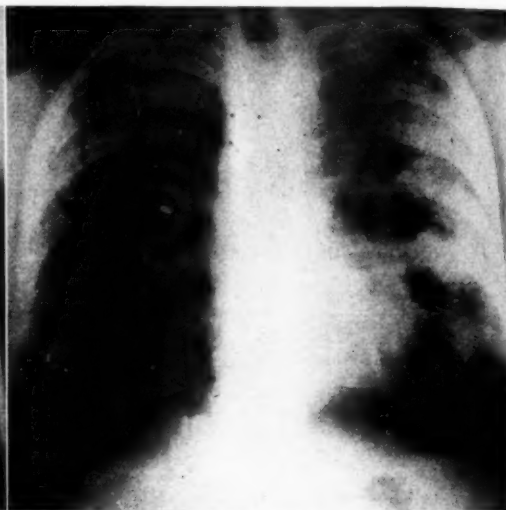


Fig. 6. Roentgenogram of the chest of a man of forty-eight years suffering from pneumoconiosis.

the heart and mediastinum were pushed to the right, causing great dyspnea and exhaustion. Closed drainage was instituted at once, with slow removal of the fluid. The cavity was irrigated with Dakin's solution every two hours, for twenty-three days, with the exception of five days when normal saline was substituted because of the irritative action of the Dakin's solution in the bronchi. Eleven days after closed drainage was instituted he remained temperature-free and ten days later the pleural cavity was sterile. Since discharge from the hospital two years ago this patient has gradually returned to his activities until now he is carrying on strenuous farm work.

Patients with cardiac disease may also have pulmonary hemorrhages, as shown by the following case:

A. H., female, twenty-one years of age, on two occasions at two weeks intervals spat up bright red blood in an amount of one teaspoonful. She had noticed a slight cough and lassitude for one month.

The examination revealed normal lungs, but there was a systolic thrill and a presystolic murmur transmitted to the left axilla.

The X-ray showed a slight increase of the outline of the left cardiac border. The lungs were normal.

Diagnosis: Mitral stenosis.

Persistent cough is frequently caused by conditions other than tuberculosis. Impacted cerumen

may result in paroxysms of coughing. Involvement of the paranasal sinuses very frequently cause cough. When cough is present, there may or may not be sputum. The color of the sputum is of considerable significance. It may vary from clear appearing mucus to a deep yellow or green and in some cases it is streaked or blood tinged. In septic conditions such as lung abscess and bronchiectasis the sputum may have a very foul odor. Again, offensive sputum may be present in cases of pulmonary tuberculosis where it accumulates in cavities and remains over a considerable period of time.

Weight loss occurs in many pulmonary lesions. It is a common symptom in malignancy and pulmonary abscess as well as in tuberculosis. There is not one symptom which is pathognomonic of any chest disease.

In an evaluation of the phases of an examination the relative importance has changed considerably. At one time we placed most emphasis on physical examination. Today, as much as we may dislike to face the fact, we are compelled to place the physical examination below first place.

When the patient presents himself for examination the first time, the intracutaneous tuberculin test should be applied. Although a great deal has been said to the contrary, tuberculin is a very valuable agent in differential diagnosis. This is particularly true since tuberculous infection is no longer universal even in adult life. When definite pulmonary findings are present and the intracutaneous tuberculin test remains negative after the dose has been increased to one or two mg., one can be reasonably certain that a nontuberculous condition exists. In conditions which have been said to reduce hypersensitivity to tuberculin, such as overwhelming tuberculous disease, and acute febrile diseases, if enough tuberculin is administered a positive reaction will appear. In some cases with negative cutaneous tests it may be necessary to resort to the subcutaneous test. This, when properly applied, is without harm to the patient and gives the physician a good deal of aid in diagnosis.

A. J., female, 29 years of age, complained of cough and expectoration that had been present for many years. She had influenza nine months ago which left her extremely weak and tired. She had an occasional increase in temperature for the last two years and had changed climate, being strongly of the opinion that she had pulmonary tuberculosis.

The chest examination revealed no abnormal signs

except a few râles over the bases of her lungs posteriorly.

The X-ray examination was negative, except for accentuation of the bronchial trunks.

The sputum was negative for tubercle bacilli on many occasions.

The basal metabolism was minus 14 per cent.

The cutaneous tuberculin test was negative. We resorted to the subcutaneous tuberculin test administered

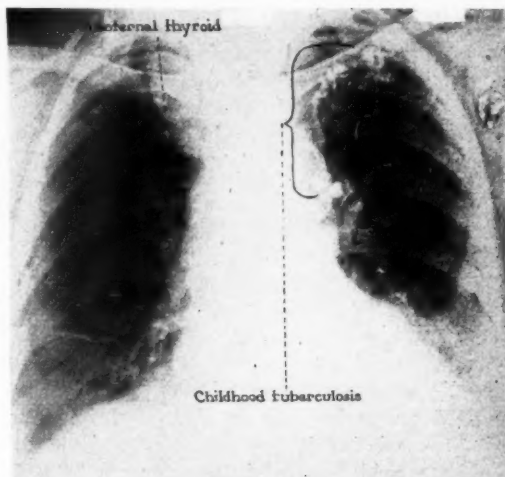


Fig. 7. Roentgenogram of the chest of a woman of sixty-five years. In addition to hypertension heart and substernal thyroid gland, this illustration shows evidence of the childhood type of tuberculosis in the left upper lobe and the left hilum.

in the usual manner. She reacted negatively to ten milligrams.

In the two years that have passed since this examination, no further symptoms or findings have appeared.

The X-ray has been in use sufficiently long to make it possible for us to give it a very definite place in the evaluation of diagnostic data. We are firmly convinced that a carefully made X-ray examination in the diagnosis of chest conditions is second only to the finding of specific microorganisms. In many cases one cannot rely upon a fluoroscopic examination. A single film of the chest is of considerable value, but is inferior to well-made stereoscopic films when examining for small areas of disease. Such films may reveal evidence of disease in the lung parenchyma before signs are present. If the normal chest is well understood and the stereoscopic films reveal no changes from the normal in the lung parenchyma, one is quite safe in rendering a negative diagnosis of pulmonary pathology. However, it is sometimes necessary to make lateral films in order to visualize areas of the lungs ob-

scured by the heart. This is extremely helpful in questionable cases; it gives one a confidence that is impossible to obtain in any other way. The location of the lesion revealed by the X-ray is also of considerable value in differential diagnosis. Lesions located in the lower part of the lung usually are nontuberculous; those in the middle portion of the lung are about one-half tuberculous; while those in the upper portion of the lungs are usually tuberculous. This does not mean, of course, that a nontuberculous lung abscess may not develop in the upper part of a lung. The X-ray aids greatly in outlining the extent of disease as seen in Figures 5 and 6. Again, it often brings to light unsuspected lesions as shown in Figure 7.

Iodized oil aids the X-ray examination quite materially. It is easily introduced into the bronchial tree, and when all other diagnostic aids have failed, the visualization of the bronchus and its ramifications may aid in diagnosis (Fig. 4).

Improved laboratory methods and the recognition of their great value makes differential diagnosis much easier than in the past. Methods of differentiating between true tubercle bacilli and other acid-fast bacilli are extremely helpful. Concentration methods aid tremendously.

We have come to know that inability to find tubercle bacilli does not mean a great deal unless the search for them has been a long and carefully made one. This is because only approximately one-third of the minimal cases of pulmonary tuberculosis have tubercle bacilli present in the sputum. In other words, there is not sufficient breaking down of the lesion to free bacilli in nearly two-thirds of the early cases of pulmonary tuberculosis. Therefore, we must not wait for the finding of tubercle bacilli before beginning treatment, as the patient often has lost his best chances of recovery before they appear in the sputum. The examination for tubercle bacilli must be a very persistent one, as shown in the following case:

A. J., a female, 31 years of age, had influenza six years ago followed by pneumonia with empyema of the left chest. Closed drainage was used. She was symptom-free for one year, when pus was again present in the left chest. Open drainage relieved symptoms. After nine months she developed a severe cough with expectoration of profuse and offensive sputum. Six months were spent in a tuberculosis sanatorium, where tubercle bacilli were not found in either sputum or pleural exudate. One year ago she had twelve pulmonary hemorrhages. Again no tubercle bacilli could

be found. Inguinal lymph nodes were removed which proved to be tuberculous. She rested in a sanatorium and was later advised to have thoracoplasty.

Physical examination revealed enlarged cervical and supraclavicular lymph nodes on the right side. There were enlarged, tender lymph nodes in the left axilla and in the inguinal and femoral regions bilaterally. There was limited movement of the left chest. Tactile fremitus and whispered voice were increased, and moderately coarse râles were elicited over the entire left chest. Thirty-six sputum examinations were negative for tubercle bacilli, but the guinea pig inoculation was positive. Five months later the sputum became positive for tubercle bacilli on direct smear. The X-ray then showed evidence of pulmonary tuberculosis in the right upper and lower lobes and thickening of the pleura on the left side. Barium enema under the fluoroscope gave evidence of colitis, which was thought to be tuberculous.

Again, we know that, since paratubercle bacilli are abundantly present in nature, we must be extremely careful about making diagnoses on the presence of a few acid-fast bacilli in the absence of any other finding. One or two positive sputum reports may be made in cases entirely negative to tuberculosis. In addition to paratubercle bacilli, one must keep in mind errors which occur in laboratories. The following case illustrates this point:

W. K., a male, twenty years of age, following an operation for appendicitis a year before our examination, developed pneumonia on the right side. Convalescence was extremely slow and finally a diagnosis of tuberculosis was made, and he was sent to a sanatorium, where tubercle bacilli were reported from sputum examinations on two occasions.

On examination, after he had spent twelve months in a sanatorium, râles persisting after cough were elicited in the right axilla and right base posteriorly. The left lung was clear.

The X-ray film showed no evidence of tuberculosis. The slight shadows in the right lower lobe were suggestive of an old lung abscess. The sputum was negative on many occasions.

Diagnosis: Pulmonary abscess following pneumonia.

Since our examination this patient has been engaged in strenuous physical work for three years with no recurrence of symptoms.

Careful investigation of the sputum for various kinds of microorganisms often leads to diagnoses of nontuberculous conditions, such as pulmonary distomiasis, actinomycosis, aspergillosis and oidiomycosis. Stovall and Bubolz have recently reported the finding of forty strains of yeast-like fungi isolated from sputum. Lemon has called attention to coccidioidal granuloma being more widespread than is currently believed.

Sayers and Meriwether selected from 18,000 roentgenograms 125 with unusual appearances and which were variously interpreted as being the result of miliary tuberculosis, silicosis, tuberculosis or pneumomycosis. With two exceptions, the subjects appeared healthy. Tubercle bacilli were found in only two cases of eighty-eight in which the sputum examination was made. Fungi were found in the sputum of many cases. The fungi were identified as *asperigillus fumigatus fisheri* and *asperigillus niger*. All but one of the 125 cases were associated directly with farming or the handling of grain such as wheat.

The newer modifications for elastic fiber staining are helpful, since elastic fibers in the sputum, accompanying tubercle bacilli, always indicate a pathologically active tuberculous process. On the other hand, the presence of elastic fibers and the absence of tubercle bacilli over a considerable period of time is very strong evidence of the existence of a nontuberculous pulmonary process.

The bronchoscope has been of great help in

differential diagnosis and its more general use promises to further aid in differentiating other conditions from tuberculosis. This method makes it possible to actually visualize the inner parts of the trachea, the bronchi and some of their larger ramifications. It also makes biopsy possible in some questionable cases. It is significant that in the past few years primary carcinoma has been detected by this method by Vinson, Moersch and others in a surprisingly large number of cases. Doubtless in years gone by these would have been diagnosed tuberculosis without postmortem examinations. It is obvious, therefore, that the methods of differential diagnosis, even beginning with Laennec's time, have made it possible to detect many nontuberculous conditions which previously were regarded as tuberculous. No doubt, this has played a considerable role in reducing the mortality from tuberculosis and, in recent years, it must be considered as one of the important factors causing the apparent rapid decline in the tuberculosis death rate.

THE PROBLEM OF THE FUNCTIONAL NERVOUS CASE*

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THERE is perhaps nothing in the field of medicine, today, more deserving of consideration than the so-called functional nervous case. To the man practicing general medicine and surgery it presents the picture of many and varied subjective symptoms not substantiated by objective findings: the oft-returning and complaining patient who fails to improve and whose burden of woe falls none too lightly on the shoulders of the harassed but uncomplaining doctor. Drugs, operations and arguments fail in giving relief, and the patient travels around from one to another of us and then descends to the chiropractor's level and to that of various other cults. To the neuro-psychiatrist, these are fascinating cases, because they invoke the study and analysis of personality in all its colors, for a personality which has gone awry can cause just as much, if not more, suffering than any physical disease. An exhaustive study of this subject is quite impossible in a brief paper of this kind, but a comprehensive review, touching the high spots, may prove interesting and instructive.

It is in order, first of all, to discuss in a general way the factors which are responsible for producing the functional nervous case. Heredity plays its part—not in the transmission of actual disease or structural defect, but in helping to establish the pattern of personality in the individual. Personality may be defined as the reaction of a person to his environment, and his reaction is going to depend to some extent upon the equipment with which he is born. The so-called "neurotic temperament" is definitely transmitted from parent to child—not always but often—and consists merely in the lack in the offspring of normal resistance to meet the experiences he must encounter in passing through life. This failure of resistance may show itself early—at the age of puberty, when evolution is taking place, or even earlier—or it may hide itself under various masks until the latter part of middle life and become very troublesome during

the involuntional period. In any event, it is rare for an individual of this type to go through life without some demonstration of his "psychological unfitness."

The next great factor is that of experience. As already pointed out in a previous presentation, there is no way of foretelling just what experiences a person is going to meet in life. No two persons meet exactly the same experiences and no two persons would react exactly alike to the same experiences, but with heredity as a background, experience becomes a vital factor in disorder of personality, and out of experience rise all the myriad reactions and effective symptoms which so ensnare the patient and make his life unbearable.

Greatest of these is fear. It is undeniably the outstanding symptom—the cornerstone, if you please—of the false structure which is built up in the personality of the individual so affected, and fear is invariably the product of experience—the lasting impression which is gained through some shock, physical or psychic. Fear may show itself early or late, after such shock, but can usually be traced directly to its source. Fear may take many forms, common among which are fear of insanity, fear of syphilis, fear of cancer or tuberculosis, and fear of suicide. A patient, now under our care, was so permeated with the fear of suicide that she would remove implements, such as knives and hatchets, from the house, because the sight of them suggested to her that she might use them to kill herself. There was no desire to die—in fact quite the contrary—but the ever-present fear that she might commit suicide haunted her night and day. Another patient now being treated, a woman of seventy, is obsessed with the fear of cancer. She saw her husband die of cancer fourteen years ago. Twelve years ago she had a breast removed for carcinoma, so she, herself, while in excellent physical health, with not a possibility of malignancy, lies in mental torture engendered entirely through fear of this disease. Less common are other bizarre forms of fear, such as the fear of

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making mistakes, the fear of going into high places, the fear of being in crowds of people, and that terrible affliction—the inferiority complex. A few years ago, a physician from Iowa consulted us because of his fear of mistakes. He would dispense his medicines to his office patients in the afternoon, and in the evening he would drive miles into the country after them going to their homes to check up what he had given—consumed with an anxiety and fear that he might have given the wrong drug. One could write a volume on fear, itself, for its outstanding position as a symptom in functional nervous cases is unimpeachable.

So many other elements enter into the pattern of these cases that to enumerate them or to classify them here is out of the question. The early life of the child, the home environment and the "parent-child" relationships are worthy of mention. Lack of proper discipline, absence of love and compatibility in the home, excessive coddling and petting by fond parents during childhood, or excessive anxiety for the child's welfare on the part of the parents, are all very important. Sex education and sex information, imparted at about the age of puberty, will save many a child from defensive reactions which may cause untold misery later on. Many an adult woman has confessed that she had never lost the sense of shame produced when she first experienced menstruation. Not having been informed of this event by her mother, a lasting impression of shame and inferiority was made, which cropped out from time to time and gave her an unbearable state of mind. Many a youth develops serious personality changes because he believes that nocturnal emissions are evidence of some shameful or defective condition. The subject of masturbation and the false assertion to the child that it will produce insanity often bears fruit in later years as a vitally depressive factor in functional nervous disorders. While we are not particularly Freudian in our viewpoint, nevertheless it cannot be denied that the cause of a great many functional nervous disorders lies in faulty sex-adaptation. The rising generation of today is peculiar in its sophistication in all matters pertaining to sex. Just what has caused this is difficult to say, but the fact remains that our youth of both sexes are very blasé in their attitude towards things that a generation ago were left for those of more mature years. This con-

dition, together with liquor and tobacco and all-night parties, must have its effect on the stabilization of the nervous system of the still-developing boy and girl. Sex-freedom and clandestine sex-indulgence by the young people from sixteen to twenty years of age results in premature acquiring of experiences that should be reserved for those somewhat older. This, in turn, tears down "moral fiber" and causes fears and repressions and shame, which produce defensive reactions of various kinds, which we commonly see. We have seen a girl of eighteen develop an hysterical paralysis of bladder and both lower limbs, through fear of pregnancy following sex-indulgence with a married man, and augmented by the fear that her parents would find it out and disown her. We have seen a woman of fifty, who was profoundly depressed because years ago she had tasted clandestine sex-life. We have, at the present time, under observation, a young unmarried woman of thirty-two, who has an overpowering sense of shame and inferiority because "no one wants her." Filled with normal maternal instinct and denied her own children, she lavishes excessive affection on her mother, as a compensatory measure, and is unable to take a position and work because she gets so weak and tired and her back aches so if she tries it. So we must admit that sexual maladjustment plays a great part in the production of these various disorders. Passing on, we encounter the bachelor and old-maid complex, which causes so much misery during the last two decades of life. Unfortunate indeed is the girl who gives up her own matrimonial prospects to take care of an invalid or incompetent parent and who sacrifices her own life's happiness on the mistaken altar of duty. All goes well, perhaps, until finally the parent dies, leaving her alone at forty-five or fifty. She, deprived of her task, and having no child or husband or other vital interest in life, promptly turns in on herself and develops all sorts of functional or emotional symptoms. Nothing is more pitiable than the bachelor of sixty or more, who has no one but himself to think about. His life work is done and he has no other outlet but consideration of his own grievances and his own infirmities, and so he spends his declining years, gradually becoming an egocentric, depressed and morbid old man. We have, under our care at the present time, a spinster of sixty-five. She is all alone in the world, with a small income derived

from a legacy of some years' standing. With no one but herself to think of and with all normal instincts in life denied her, she turns periodically into herself and becomes morbid, anxious, depressed and sleepless, and about once a year comes to us for two or three months of treatment. The treatment consists in placing her in the hospital, among agreeable surroundings, where she can make friends and have personal attention from the nurses, and she invariably improves, gets well and goes home happy, to have another attack the next year.

An apology, perhaps, is necessary for presenting these elementary facts in the preceding paragraphs, but they are presented for a purpose, and that is to call attention to the importance of the background of the individual. To handle successfully the functional nervous case, one must study the individual more than the symptoms. Perhaps the greatest difficulty in handling cases of this kind lies in the length of time it takes, for time must be taken if success is to be achieved. To study the individual requires that we secure a word picture of his life as it really has been. His symptoms are of minor importance, for in the true functional nervous case the symptoms are merely local subjective manifestations of a general condition and have no particular reference to the part of the body where they are located. Too often when a patient complains of "headache," the Doctor hurriedly prescribes an anodyne, when a proper analysis of the complaint would prove it to be a sensation of pressure or constriction, so common in depressed individuals, and not pain at all. The head, the stomach, the heart and the bladder are those parts most frequently complained of. The patient believes he is going to lose his mind or thinks he has a tumor in the brain because of the sensation of pressure in his head, or he believes he has heart disease because of palpitation and distress in the left chest. He often says he cannot lie on his left side in bed, because he chokes or feels his heart beating; or he fears cancer because he has gastric distress and belches or vomits. He thinks he has "kidney-trouble" because he urinates so frequently. A careful history in cases of this kind, with a complete review of the individual's life, is of utmost importance, and while the history is being taken the patient should be studied as a whole. Then follows a complete examination to rule out definitely any organic disease and

any possible foci of infection. The diagnosis of "psychoneurosis" should be the last diagnosis made.

Within the past sixty days, the writer has had referred to him two cases which were sent in by their physicians as cases of functional nervous disorder. The one proved, on examination, to have multiple myelomata of the vertebral column, and the other an inoperable carcinoma of the pylorus, gallbladder and liver. In both cases the diagnosis was established clinically and verified at autopsy. We are firm believers in complete and exhaustive examinations to rule out infection and disease. We admit readily that obscure infection and obscure disease will produce the symptoms of the functional neuroses, and we repeat that the diagnosis of functional neurosis should be the last one made, but having excluded disease and infection and having studied the patient and arrived at our conclusion, we do not hesitate to make our diagnosis, for we know that emotional disorder will produce such a multiplicity of subjective symptoms as to simulate almost anything.

Mention of the compensation or litigation neurosis has been omitted purposely from this discussion, because such cases constitute a group in themselves, and are always terminated successfully by adjustment of compensation or ending the litigation. As such, they have no place in this presentation.

Turning our attention to the treatment of the functional nervous case, we enter a great field of endeavor which presents innumerable problems of detail, but which, nevertheless, is sponsored by definite and well-balanced principles. From the standpoint of treatment, these cases fall into two large groups:

1. Those not disabled as far as vocation is concerned.
2. Those so affected that they are no longer useful members of society, and are unable to follow their normal occupation.

General principles of treatment are the same in both groups but the details differ. It is with the severely affected type that we are chiefly concerned—those who are so out of adjustment, psychologically, that they can no longer earn a living or balance themselves emotionally so as to fill their normal place in life. To treat such a case successfully in the home or as an office patient is impossible. Surrounded by friends or

relatives, the patient is unable to free himself from the emotional morass into which he has sunk, and anything the physician can do either in the office or by calling at the home is promptly neutralized by the home reactions. It is a waste of time to try such a procedure and can end only in disgust on the part of the doctor and failure on the part of the patient. Sending away on a trip rarely does good, for an individual overwhelmed by an emotional tornado in Minnesota or Wisconsin, is not going to be any different in California or Florida. It is no more possible to run away and lose this condition than it is to run away and leave one's shadow behind. The oft-repeated advice to the patient's family to "take him away on a trip and give him a good time" or to get a "change of scenery" is practically worthless from the standpoint of successful therapy. It may prove good in an occasional case, but usually not. The most common effect is to depress the patient more and to discourage the family, because they have tried something that they feel should have succeeded and did not.

The first step needed to insure success is to get the patient away from home and into a hospital or sanitarium. Here a neutral atmosphere can be established and the physician can secure perfect control of his patient and have his orders properly executed. The hospital atmosphere being impersonal and unemotional, offers the ideal field for relaxation and settling down to the business of getting well. The next step is to exclude family and friends and shut off telephone calls and mail. This usually involves an argument with the family as well as with the patient, for they cannot understand the reason for such restrictions. The wise and diplomatic doctor, however, will insist on having his way and will explain to the family that if they are going to the expense of hospitalization to get the sick one away from home, there really is no object in bringing the home to the hospital. Having secured the coöperation of all concerned in these two procedures, the battle is half won. From then on it is up to the doctor to sell himself to the patient and conduct a campaign of education which will result in recovery. This requires time: daily bedside visits, where often it becomes the doctor's job to sit and listen. Having gained the patient's confidence, it is amazing the mass of emotional debris which will pour out of

his innermost self, if the physician will sit and listen. Finally comes the time when there is no more material to come and then we begin to see results. Feelings, sensations and experiences which have been repressed, often for years, are removed and the normal personality begins to return in all its buoyancy. Recovery is never rapid. It is usually a matter of many weeks or even months.

Convalescence is punctuated by frequent periods of depression, with return of old fears or the appearance of new ones. This discourages the patient but not the doctor, for these periods grow shorter, less severe and less frequent and there is a gradual and progressive trend towards recovery. With a firm and understanding hand the physician leads his patient, giving explanation and information as often as necessary, and never resorting to ridicule. Many of the most trivial anxieties need the most careful explanations, and under no consideration should the patient be allowed to believe that he is "silly" or "a fool." Ridicule and sarcasm have no place in the treatment of functional nervous cases, and if used will do positive harm and retard recovery, in addition to destroying the confidence of the patient in his doctor.

Physiotherapy, baths, massage and electrotherapy, with many forms of suggestive treatment, are all useful adjuncts. Attention to diet and personal hygiene, with proper regulation of body weight, are also in order. Drugs are given as little as possible, but are used where indicated, particularly to secure adequate sleep at night. Proper adjustment of rest and exercise, with various diversions such as games and occupational therapy, are always proper, particularly during the convalescent period. The hospital or sanitarium régime must be continued until recovery is complete enough to insure self-confidence, and absence of all the former troublesome symptoms.

The physician's personality and his willingness to take the necessary time, together with his ability to read and understand human nature, are the attributes that govern his success in treating the functional nervous case. An accurate diagnosis, a positive attitude, a forceful personality and a real interest in the case will in most instances produce the desired cure.

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LEUKOPLAKIC VULVITIS OR KRAUROSIS VULVÆ; ITS RELATION TO CARCINOMA AND ITS SURGICAL TREATMENT*

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IT hardly seems possible that a disease that was so completely described fifty years ago, a disease which can be present for months or years on the genitalia of women and can produce itching, burning, ulceration, and occasionally can be associated with malignant disease, could still remain the subject of considerable difference of opinion. It does not seem that this disease has been given as much attention in recent years in the literature as its importance merits, although Graves and Smith reviewed the literature and outlined the various views held by gynecologists regarding the terminology and the clinical course of the disease. The five-year results in cases of leukoplakia vulvitis and carcinoma of the vulva recently given by Taussig leave one with scarcely a doubt regarding the correct treatment.

There has always been difference of opinion regarding the terminology of this vulvar disease, and its relation to malignant growth. Most authors have used the terms "leukoplakic vulvitis" and "kraurosis vulvæ" interchangeably, although a few have maintained that the two terms denote separate diseases. Berkeley and Bonney held to the latter view. They stated: "Leukoplakic vulvitis is a chronic inflammatory condition of unknown origin characterized in its early stages by marked hyperemia and cellular activity, and in its later phases by marked epithelial hypertrophy, and a thickened, sclerosed and retracted condition of the subepithelial tissue. The whole of the vulva may be implicated with the exception of the vestibule and orifice of the urethra, which are never affected. It may extend laterally to the folds of the thigh and posteriorly to the external perineum and the skin around the anus." The term kraurosis, which is extensively used in this country to apply to the condition just described, was rejected by Berkeley and Bonney, and was used by them to designate a condition which most gynecologists ordinarily regard as progressive sclerotic genital atrophy. Kraurosis, in the strict

sense, as stated by Berkeley and Bonney, is an atrophic condition of the vulva associated chiefly with stenosis of the vaginal orifice and pathologically with certain changes in the dermis. It may involve all the surfaces of the vulva as far as the cutaneous borders of the labia majora, and the skin of the perineum and anal region. They regarded the loss of ovarian function, such as that in young, sterile women, and that following the menopause and surgical removal of the ovaries, as the main etiologic factors in kraurosis, although they admitted the influence of chronic inflammation.

Graves and Smith, from their histologic studies of eighteen cases, regarded leukoplakia vulvitis and kraurosis vulvæ as phases of an identical process, and advocated retaining the term kraurosis in its original sense as described by Breisky. Szász and Veit expressed the belief that kraurosis is an end-product of leukoplakia, that the two are different stages of an identical process, and that leukoplakia is a hypertrophic or progressive stage and kraurosis an atrophic or regressive stage. Taussig discarded the term kraurosis entirely and recommended that if it were used at all it should be applied to the simple form of vulvar atrophy, as advocated by Berkeley and Bonney, and that the name leukoplakia vulvitis be used to designate a disease commonly known as kraurosis. I favor the term leukoplakic vulvitis because it signifies the inflammatory nature of the disease. Furthermore, the process not only involves the vulva but may extend to folds of the thigh, perineum and perianal tissue; vulvar atrophy is usually confined to the vulva.

The etiology of leukoplakic vulvitis is not known. It is thought to be associated with chronic irritating vaginal discharge although this is not entirely correct, since patients have been seen who did not have a history of any irritating vaginal secretions. The average age at which the condition makes its appearance is usually in the fifth decade, but it has occurred as early as the thirtieth year and as late as the seventieth year. The average age as given by Berkeley and Bonney is

*From the Division of Surgery, The Mayo Clinic, Rochester, Minnesota. Read before the Second Annual Meeting of the Central Association of Obstetricians and Gynecologists, Excelsior Springs, Missouri, October 11, 1930.

fifty-one years, by Taussig as forty-nine years, and by Graves and Smith as fifty-five and six-tenths years. It is rarely seen in negroes. The civil state of the patient may have a direct bearing on the cause of the disease, since the highest

a basis of vascular change and infection, since there is diminution of the number of blood capillaries and other blood vessels in the subcutaneous tissue and since the condition is always associated with chronic infection.

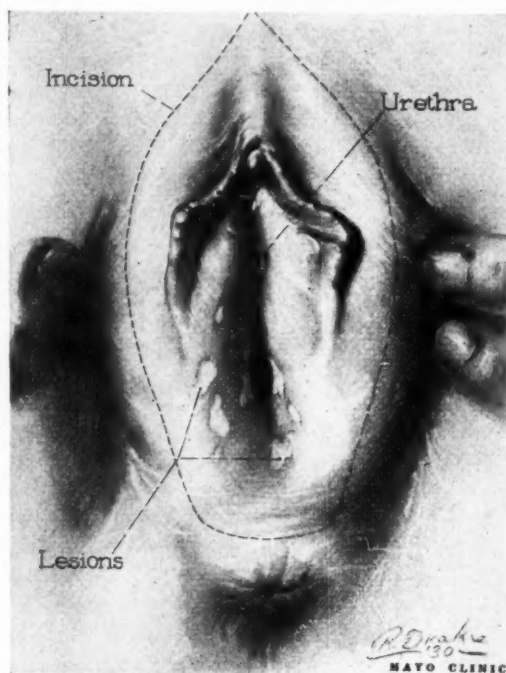


Fig. 1. Leukoplakic vulvitis, early stage, line of incision for simple vulvectomy.

percentage of women who suffer from leukoplakic vulvitis either are married or have been married. Parity does not seem to be a factor, since the number of cases seen in sterile women and in those who have had children are about equally divided. Disturbance of the ovarian function has been repeatedly emphasized in the literature, since practically all cases which have been observed and reported have occurred among patients past the menopause. In cases in which the disease was present before the climacteric the patients for years had had some abnormality of the menstrual function, although it was not always severe. Syphilis has no direct connection with the disease although it may be seen in conjunction with it. It may be said that leukoplakia vulvitis is an inflammatory disease due to some injury or interference with the physiologic activity of the surface epithelium of the labia. This disturbance may in the future be shown to be on



Fig. 2. Leukoplakic vulvitis, late stage. The labia minora are absent and there is marked contraction of the labia majora and partial stenosis of the introitus.

The most characteristic and predominant subjective symptoms are pruritus, burning on urination, and pain or acute sensitiveness of the vulva. The pruritus is of long standing and frequently is the only symptom for many years. It may be so intense that patients suffer from insomnia, for the pruritus is more severe at night. Dysuria is usually worse in the late stages of the disease, when the skin becomes excoriated from scratching. Objectively the vulva is at first reddened, and swollen, and the surface is dry and excoriated (Fig. 1). Later the labia minora decrease in size, become somewhat stiffened, and the color changes from red to white or gray (Fig. 2). The skin then may become cracked and ulcerated, may bleed easily when scratched and there may be a slight discharge on the surface. The ulcers are of various sizes and may be long, irregular or patchy. They may be covered with a pearly blue substance which can be wiped off easily and beneath which is seen a reddened, granulated area. The epithelium around the ulcers is hyperkeratotic and the base is hard and very sensitive to the touch. It is in this hypertrophic or progressive stage that malignancy is said to occur.

If malignancy does not occur, the disease progresses into an atrophic state with marked shrinking and retraction of the parts and stenosis of the vaginal orifice.

The histopathologic picture varies according

to the stage in which the disease is seen. There is diminution in the infiltration with round cells and increase in the sclerosis of the dermis. Briefly it may be said that in the late stage the epithelial layer consists of a deep layer of hyperkeratosis, beneath which

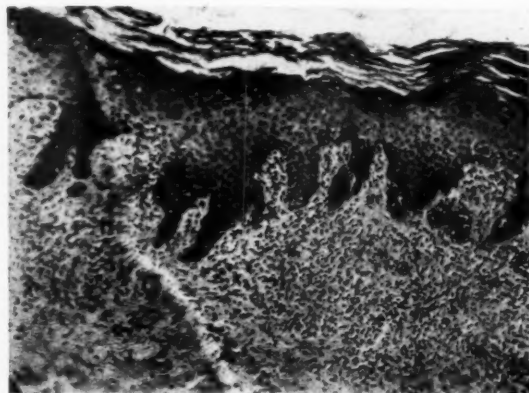


Fig. 3. Elongation of the epithelial papilla, subepithelial leukocytic infiltration and fibrosis with thickening of the keratin layer.

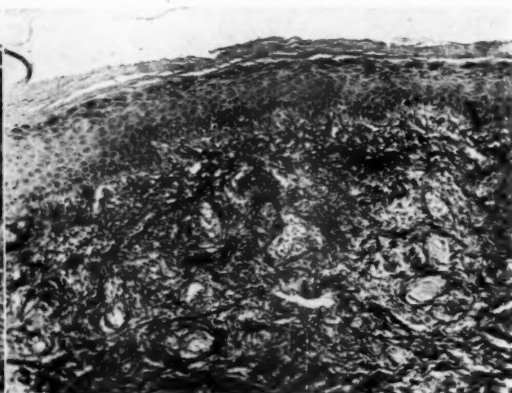


Fig. 4. Van Gieson's stain for connective tissue. Marked subepithelial fibrosis with strangulation of the blood vessels and infection.

to the stage in which the disease is seen. The excellent description given by Taussig, who is an authority on vulvar disease, can scarcely be improved. He stated that in the early stage there is seen extensive subepithelial leukocytic infiltration, with pronounced elongation of the epithelial papillæ, and beginning thickening of the keratin layer (Fig. 3). In this layer nuclear elements may be seen, and Taussig applied the term "parakeratosis" to this stage to distinguish it from the later hyperkeratosis, in which only thickly packed fibers of keratin can be seen. After several months, if the disease has been progressive, there is noted a marked increase in the thickness of the eleidin layer and in the amount of eleidin deposited in the cells; the layer appears as a dense black band beneath the keratin layer. The epithelium in the hyperplastic stage is several times thicker than it is in the normal state. There is considerable hyperemia and infiltration of the connective tissue with round cells. In the final or atrophic stage there is marked increase in the connective tissue, associated with sclerosis (Fig. 4). Gradations from the hyperplastic to the atrophic stage can be observed in the same sections, because the changing process is not abrupt. In the late stage there is seen increasing hyperkeratosis, an increased amount of eleidin, and reduction in the size of the epithelial papillæ. These become much

flatter and shorter. There is diminution in the infiltration with round cells and increase in the sclerosis of the dermis. Here the infiltration with round cells is in more or less circumscribed lymphatic zones, which resemble lymph nodes. The infiltration is much less marked than in the early stages, and many plasma and mast cells are scattered through the connective tissue. The connective tissue now undergoes collagenous change, producing patches of glairy tissue in which may be seen but few normal cells (Fig. 5). There is diminution in the amount of elastic tissue between the epithelial papillæ of the skin, and directly beneath the basement membrane, even in the early cases; this absence of elastic fibers becomes increasingly pronounced as the disease advances to the late stage.

RELATIONSHIP OF LEUKOPLAKIC VULVITIS TO MALIGNANT DISEASE

Leukoplakia in its broad sense, since the time of its description by Schwimmer, in 1877, has been regarded as a precursor of carcinoma. Berkeley and Bonney, and Taussig emphasized the tendency of leukoplakic vulvitis to undergo malignant change. Berkeley and Bonney stated that the relationship borne by leukoplakic vulvitis to

carcinoma is closer than that of any other pathologic lesion, with the exception of roentgen-ray dermatitis. Mars, Szász, Butlin, Schmidt, Bucura, and others described what they considered a direct transition of leukoplakic vulvitis into carcinoma. Kraurosis with carcinoma was reported also by Jung, and recently by Gargert, who mentioned three stages: first, an atrophic kraurotic stage; second, a phase of atypical epithelial proliferation, and third, carcinoma. Smith made an intensive search of his sections in order to determine whether carcinoma developed on a basis of kraurosis as well as on a basis of leukoplakia, in view of the fact that Szász expressed the belief that kraurosis is the end-product of leukoplakia, and that kraurosis in its strictest sense represents an entirely obsolete process from which the development of carcinoma is improbable. Smith found that in all but two instances the matrix of the carcinoma was obviously leukoplakic. Taussig found, in a study of thirty-nine cases of vulvar carcinoma which was implanted on a leukoplakic base, that histologically in 60 per cent the malignant changes took place in an early hyperplastic area, and in 40 per cent in a late atrophic area. There seems to be, therefore, sufficient evidence that carcinoma can develop in either stage of the disease although its development is more likely to manifest itself in the hyperplastic or progressive stage. Since carcinoma does not develop in all cases of leukoplakic vulvitis, it would seem that there must be factors other than the leukoplakic process which initiate the malignant process.

Broders stated that leukoplakia is hyperkeratosis and is purely a defensive reaction of the corium; in other words that it is normal thickening of the skin caused by chronic irritation. It may be associated with infection but this depends on the part of the body that is involved. A typical example of hyperkeratosis is the ordinary callus on the hands or that on the soles of the feet. It is frequently seen on the lips of habitual smokers. The itching which develops is induced by infection in the subepithelial tissue. Infection is certainly more likely to occur around the genital and anal orifices, and, once it develops, there is accompanying pruritus of more or less severity which is directly proportional to the amount of infection. Following this there is subepithelial inflammation in addition to leukoplakia, which is aggravated by constant scratching. During the

succeeding months or years after the onset a more extensive hyperkeratosis develops. This may spread to the cutaneous margin of the vulva, anal and perineal regions, and may be associated with ulceration and more infection. There is now hy-



Fig. 5. Late stage. Connective tissue developing collagen, which is a normal protective process. Absence of infection and blood vessels may be noted.

perkeratosis, with thinning of the stratum germinativum and stratum mucosum; marked increase in the number of connective tissue cells, plasma cells, lymphocytes, and mast cells; few polymorphonuclear leukocytes, and decrease in the elastic tissue. This is the classic picture of healing by second intention and scar formation. Katsurada considered this a sign of degeneration, and Frieboes considered it a process of healing by irritation.

From the onset until the final stage of the disease the most characteristic picture is one of constant increase in connective tissue and decrease of elastic tissue, with strangulation and disappearance of blood vessels, which ultimately ends in atrophy. These same changes may be compared to those seen in portal cirrhosis in which there is (1) infection around the portal spaces, from moderate to severe degree; (2) a deposit of connective tissue around the blood vessels and

bile ducts, associated with atrophy of the hepatic tissue, and (3) strangulation of the blood vessels, and scar formation.

In leukoplakic vulvitis there is a moderate degree of activity or regeneration of the stratum

the malignant process usually is the predominant picture. On the other hand, there are epitheliomas of the vulva with little, if any, leukoplakia, and, again, approximately 50 per cent of the cases of leukoplakic vulvitis terminate in

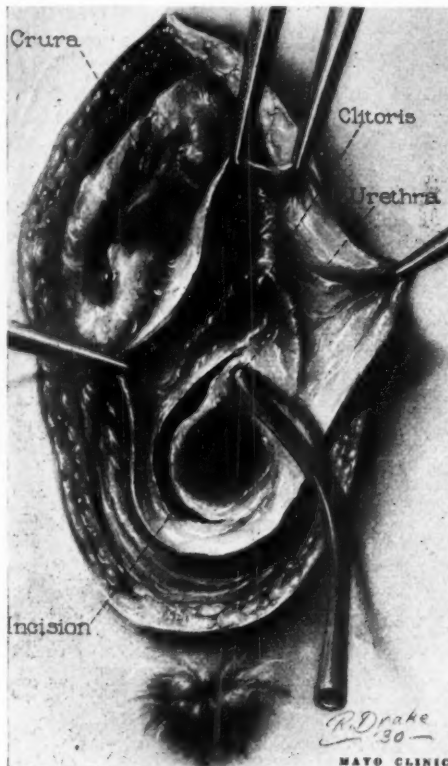


Fig. 6. The inner incision extends around the vaginal orifice at the mucocutaneous juncture and passes anterior to the urethra, thus preserving this structure. The outer incision is completed. The labia majora and minora and the clitoris are removed en masse.

germinativum and stratum mucosum which is characterized by extension downward of the epithelium in a papillary manner; this process may be marked, but it is benign. However, this regeneration is not as pronounced as the regeneration of the connective tissue. As the connective tissue increases, a process of retraction and scarring is initiated, together with diminution in the infection. Pruritus then becomes less severe and the disease is said to be quiescent.

In a consideration of the relationship which this disease has to the development of malignant change in the vulva, I believe that all statements must be made with reservation. It is true that epithelioma is seen with leukoplakic vulvitis, but

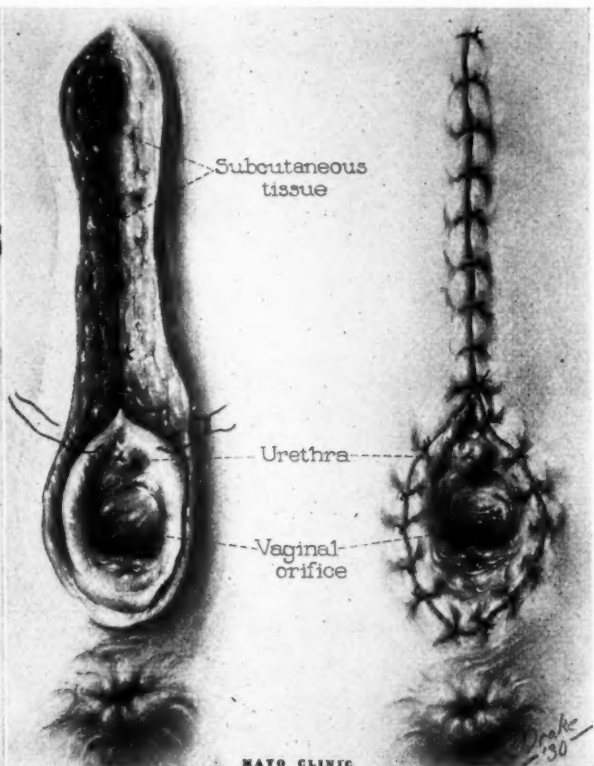


Fig. 7. Closure of the skin and subcutaneous tissue.

complete atrophy of the vulva and stenosis of the vagina. Rentschler, in a review of seventy-one cases of primary epithelioma of the vulva seen at The Mayo Clinic between 1907 and 1927, found that in 40 per cent the patients gave a definite history of preëxisting pruritus but that in only five cases were both leukoplakia and malignant change found pathologically. This, however, cannot be accepted as absolutely correct because a high percentage of the patients had been subjected to various methods of treatment for pruritus, such as ultra-violet light, radium, roentgen rays, and partial excision, before they came to the clinic. Such procedures unquestionably change the histologic picture.

It seems unlikely that the development of carcinoma in a vulva, previously the seat of leuko-

plakic vulvitis, is the direct consequence of a chronic inflammatory process. If leukoplakia is a precursor of carcinoma of the vulva, then malignant lesions should develop in varicose ulcers and in lesions of blastomycosis, since the same type of epithelium is involved, but they practically never do develop on a basis of such lesions. Carcinoma does not develop in all cases of leukoplakic vulvitis; moreover, carcinoma of the vulva occurs without leukoplakia. These facts seem to indicate that the cause of carcinoma, which accompanies leukoplakia, is not irritation.

Carcinomas of the vulva are, as a rule, slow in growth, and approximately 80 per cent are graded 1 or 2. The epithelial cells are differentiated and produce keratin which tends to hold the malignant process in check. There is also increase in the connective tissue stroma as a consequence of chronic infection. This may explain why the histologic picture resembles leukoplakia or kraurosis. Furthermore, it is rare to find kraurotic changes in a malignant lesion of the vulva graded 3 or 4, because it is developing too rapidly.

TREATMENT

The treatment of leukoplakic vulvitis in the early stages has always been directed toward eradicating the pruritus. This has been done by applying nonirritating emollients, salves, roentgen rays and radium. Most of these agents have only a temporary effect, but roentgen rays and radium often stimulate the disease or may produce a burn. If a malignant lesion is not present the ideal treatment would be obtained by sectioning the internal pudic nerve, thereby anesthetizing the vulva and permanently relieving the pain and pruritus. This procedure was first suggested by Simpson of Edinburgh, in 1861, for vaginismus; it was used, also, by Rochet, in 1899, and again in 1903, in the treatment of painful spasm of the posterior urethra and later in the treatment of pruritus vulvæ. Albertin, in 1903, used it in certain types of painful cystitis; Tavel, in 1902, used it against vaginismus and pruritus vulvæ.

Wertheimer and Michon performed this operation in two cases of vaginismus, in two cases of kraurosis vulvæ and in one case of epithelioma of the vulva. The relief from pain was permanent in the cases of vaginismus and kraurosis, and it was satisfactory in the epithelioma of the vulva.

It would seem logical, therefore, in cases of leukoplakic vulvitis, if the ulcerations are not malignant, to advise section of the internal pudic nerve, since it would give permanent relief from the symptoms which make life miserable. Learmonth, of The Mayo Clinic, has performed this operation with very satisfactory results.¹⁴

Following this operation the patient should be submitted to careful examination at least twice a year, and if there is any question of the presence of a malignant lesion, simple vulvectomy (Figs. 1, 6 and 7) should be performed in cases in which the malignancy is graded 1 or 2. If the malignancy is of a higher grade or if there is lymphatic involvement in a case of malignancy of lower grade, radical vulvectomy with bilateral dissection of the gland-bearing area should be performed after the method of Basset. If the condition of the patient in whom malignancy is found does not justify radical removal, then it would be well to section the internal pudic nerve, and to use radium, as palliative measures.

SUMMARY

Leukoplakic vulvitis is a disease of unknown origin and usually becomes manifest after the menopause. It is a progressive process, lasts for months or years, is characterized by hyperkeratosis, chronic infection and subepithelial fibrosis, and terminates in atrophy of the vulva or it may be associated with malignancy. The relation of leukoplakic vulvitis to carcinoma is not definitely known and will be solved only when the cause of carcinoma is discovered. The treatment in the early stage should consist of section of the internal pudic nerve. In the later stage, if a malignant growth is suspected, vulvectomy should be performed.

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O. W. LILLY'S SOLUTION, DENTAL

From an examination made in the A. M. A. Chemical Laboratory it is quite likely that the preparation contains potassium mercuric iodide and an arsenic compound, such as "Solution of Potassium Arsenite U.S.P." (Fowler's Solution). The product is apparently prepared by one Dr. O. W. Lilly of Welch, West Virginia. It is recommended by the proprietor for Vincent's infection and all other acute, infectious, ulcerative conditions of the gums and oral mucosa, infected sockets, and pyorrhea. It is a pity that a mixture of such potent ingredients may be dispensed under a proprietary name to the patient for pathologic conditions of the oral cavity. If a dentist or a physician desires to have his patient use a solution containing a mercury or an arsenic compound, it should be prescribed according to the individual needs, with full appreciation on the part of both prescriber and patient of its poisonous character. (*Jour. A. M. A.*, February 21, 1931, p. 634.)

VITAGLASS

Vitaglass is the trade name for one of many patented ultraviolet transmitting mediums that pass ultraviolet radiations more or less freely. A Bureau of Standards report states that vitaglass of 2.3 mm. thickness has, at a wavelength of 3,020 angstrom units, an average transmitting efficiency of nearly 25 per cent. More recent tests place the efficiency at 42 per cent. Other tests have given an efficiency of 47 per cent. The improvement in the manufacture of the product may account for these varying results. The product varies widely from batch to batch. The purchaser of vitaglass should protect himself by contracting with the dealer to furnish glass where transmission shall, after stabilization of exposure, not fall below the efficiency stated. A recent test gave no indication that children attending school in rooms glazed with vitaglass were perceptibly improved over those children who attended rooms glazed with ordinary glass. (*Jour. A. M. A.*, February 28, 1931, p. 711.)

NON-SPECIFIC VAGINITIS*

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Minneapolis

THIS presentation is the result of a study of the records of 230 patients selected from among 43,000 registrations at the Nicollet Clinic of Minneapolis, Minn., upon whom the diagnosis of acute, subacute, or chronic non-specific vaginitis was made. The vagina is provided by nature with certain defenses protecting the peritoneum from infection by way of the uterine canal, the entrance to which may or may not be closed to outside invasion. The chief defense of the vagina is a secretion which, if normal, is destructive to ordinary invading bacteria, and tends to protect the vaginal wall as well as the cervix uteri from infection. Anything that contributes to reducing the natural resistance of this defense, or the nutrition of the vaginal wall, interferes with the protective forces of the vagina and predisposes it to invasion and infection.

Incidence.—It is suggested to the writer that there are many more patients suffering from vaginitis than were encountered ten or fifteen years ago; that is, more in proportion in the aggregate of patients seeking gynecological treatment. Whether the modern dress, mode of living and motor travelling has anything to do with increasing avenues of infection, or whether it is a coincidence of an individual observation, would be difficult to determine. Perhaps prophylactic teachings relative to cancer have brought many to the examining room who otherwise would not have come under observation.

Age.—The youngest of this group of 230 was seven months old; the oldest 78 years. The majority, however, ranged from eighteen to forty, and included unmarried virgins, unmarried individuals who had indulged in sexual intercourse, and married women who had borne one or more children.

Etiology.—The cause of acute, subacute, or chronic vaginitis is usually of bacterial origin; the flagellate trichomona vaginalis also is a common causative agent. The inoculation may be from external contamination or internal systemic in-

fection. The external causes may be trauma, primarily, with an infective process superimposed; infection from the dirt of the streets; soiled douche points; mechanical abuses; accidental inoculation from imperative nursing of anal or rectal afflictions; neglected hygiene; dirty vest pocket or shop soiled condoms, and many less common avenues.

Some no doubt may have existed since infancy and been unnoticed or neglected, lying semi-dormant for years, and fanned into activity in later life, or become more virulent because of lowered general physical resistance from some other disease. If infection by chance invades the vagina one or two days before the actual flow of the menstrual period, when there is a small amount of serum or blood present, a very favorable medium is present for a rapid growth and spread of the infection to the whole vaginal wall. Again, an acute attack may be quite healed with a very few bacteria lying dormant in a fold, mucous cell or gland, when the menstrual flow appears, and a very acute exacerbation will result. It is with apology that I mention focal infection as a possible source of infection, primarily, or secondarily, for nearly all ailments which the human being is heir to are blamed on the much expounded theory of focal infection. However that may be, I have seen rapid recovery take place when the general physical economy has been strengthened by removal of infected tonsils, teeth and appendix. We know the cervix uteri is a highly resistant part of the female anatomy, provided with rich vascular supply, nature having anticipated its receiving much abuse in life. However, we do have definite infections of the cervix and cervical canal resulting from trauma, and infection of its glands from systemic infection above or below. These infections become masked and encapsulated, hidden from external identification, but may act as a store-house of bacteria to pour out infection to the less resistant, weakened vaginal wall. We know that the vagina is a bacterial haven practically from the time of birth. Because of the proximity to the home of the colon bacillus and its numerous re-

*From the Department of Obstetrics and Gynecology of the Nicollet Clinic, Minneapolis, Minn. Read before American Association of Obstetricians, Gynecologists and Abdominal Surgeons at Niagara Falls, Ontario, September, 1930.

lations, that organism is usually found in the vagina. If the colon bacillus secures the upper hand, however, there is no more unpleasant non-virulent organism known as a cause of a most foul-smelling, irritating, profuse vaginitis. Many types of bacteria may be identified in the vagina that has suffered an attack of bacterial invasion, or in a subacute or chronic cervicitis. I have made many attempts to isolate specific organisms without success; in one patient we isolated three unidentifiable organisms from which I made a vaccine, but in general its use was very unsatisfactory and discouraging.

Pathology.—The gross appearance of the introitus vagina in any type of infection is usually an extremely congested mucosa bathed in a purulent or muco-purulent discharge which usually contains many gas bubbles. The meatus urinarius may be congested and will bleed on the slightest mechanical irritation. The vaginal wall may present the appearance of a congested mucosa, the color and appearance of a very red strawberry with minute bleeding points that give a brown or yellow color to the discharge. Again, the vaginal walls might be compared to a very ripe raspberry, not so bright a red as the "strawberry" type, but with papillary elevations over the entire surface. Not infrequently the inflammation extends over the surface of the cervix uteri and into the cervical canal. It is quite possible, where this condition is present, that the endocervicitis is the primary seat of infection, the process originating from above the canal rather than from without inward. When this situation is encountered, we may have a so-called erosion which will resist therapeutic measures much more than the disease of the vaginal wall, for we have then to deal with a new cell formation resulting from the proliferation of the lymphoid tissue within the cervical canal.

If the vaginitis or cervicitis, or both, have existed for some months, or in many cases for years, we have a hyperplasia of the connective tissue resulting with occlusion of the glands and small cysts developing which add to the discharge pouring from the vaginal mucosa. The cervix then may become hypertrophied to several times its normal size and the vaginal mucosa may also appear much hypertrophied. Abscess formation may occur, but not very frequently.

Pelvic manifestations may be found in thickened tubes and parametrium, especially if the

source of infection primarily should be a salpingitis, metritis, or endometritis. An ascending lymphangitis may cause a definite pathology in the ovaries, but it is difficult to estimate just how much this pathology can be traced to an ascending lymphangitis.

Symptomatology.—In forty patients of this series, the trichomona vaginalis was found. The vaginal discharge in patients who suffer from invasion of the above flagellate is very characteristic, has an amber color, a peculiar "burned rag" odor, and is full of tiny gas bubbles. The microscopic examination easily identifies this type and it is very amenable to treatment.

The chief symptoms are a profuse vaginal discharge, usually of an unpleasant or foul odor. The color may be yellow, yellow-greenish, amber or actually bloody. The introitus may be deeply injected and very tender; the skin of the external genitals and legs may be reddened and painful from exposure to continued moisture. The patient may complain of loss of weight, heavy bearing down sensation in the lower abdomen, general malaise, or even an anxiety neurosis. If the affliction has extended over a period of months or years, there may be bladder symptoms, frequent and painful urination. Constipation may be an accompanying condition, requiring lower bowel therapy and treatment which only adds additional hazard to the vaginal condition, in that additional anal toilet increases chances of contamination of the vagina.

Treatment.—The therapy to select in the treatment of vaginitis will depend upon the age of the patient and the nature of the infection. I treat an infant suffering from an acute vaginal infection by injecting 3 per cent mercurochrome in melted lanolin through a catheter into the vagina, completely filling it, and the patient is confined to bed for forty-eight hours with a tight napkin over the vulva. Nearly as satisfactory results may be obtained by filling the vagina with a 20 per cent solution of argyrol, or, if the hymenal ring is not too small, by packing the vagina full of a soft gauze strip saturated in 15 per cent argyrol. The patient in either case is confined in bed, and the position is changed so that the solution in the vagina comes in contact with the entire surface of the vaginal wall. In the adult, the secret of treating any infection of the vaginal wall is in exposing the entire surface to the agent employed, obliterating all folds,

rugæ, and exposure of all glands. This can be accomplished by packing the vagina full of wool tampons (gauze and cotton is absolutely worthless), thoroughly saturated with the antiseptic agent chosen. The packing should be so tight that the patient will choose the bed for comfort. Our choice of antiseptics has been ichthyol compounds, or mercurochrome solutions and emulsions for the general run of bacterial infections.

The forty patients upon whom a diagnosis of trichomona vaginalis was made were treated either by the "soap alkali" treatment or the "drying-glycerine" method. Greenhill,² Davis¹ and Mathieu³ have so recently provided us with such valuable monographs on this flagellate that anything I might add would be superfluous. The following is the writer's routine method which has given such satisfactory results that I am yet to be convinced of a better method. The whole vaginal wall is dried with gauze, then with an air blast. The vaginal wall is then swabbed with a 10 per cent mercurochrome solution and packed tight with wool tampons saturated with equal parts of glycerine and ichtholdine. Patients are instructed against re-contamination from the anal region, as follows: Never allow a menstrual napkin to slip forward, exert great care in inserting the douche point, and also be careful at intercourse that no organisms be forced into the vagina. Finally, since the usual result of one treatment is immediate relief and since the trichomona grows

rapidly in human blood serum, I instruct the patient on the importance of a vaginal treatment two days pre-menstrual, and two days post-menstrual. My results have been most encouraging.

Remarks.—Careful study of the histories of this series convinced me that twenty-five of the 230 patient (10.8 per cent) suffered from trichomona vaginalis but were unrecognized. The patients in this group were registered before the year 1924. Our first laboratory report of trichomona findings was in 1921. They were found in dark field examination, accidentally, and were not considered a cause of any pathology.

Records of 65 (28 per cent) of the 230 patients contained definite history of existing focal infection—alveolar, tonsillar, sinus, gallbladder, cervix, appendix, or tubal in the order named. In this series 73 per cent complained of a vaginal discharge on the first visit; the others were discovered in the course of the study of other symptomatology. Eighty-eight, or 38 per cent, were unmarried. Two patients afflicted with trichomona were near the end of third trimester of pregnancy.

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NO QUARANTINABLE DISEASE IMPORTED INTO UNITED STATES IN 1930

No instance of the importation into the United States of any quarantinable disease from abroad occurred during the past year. This fact was recorded in a report recently submitted to Congress by Surgeon-General Hugh S. Cumming of the United States Public Health Service. Immunity from such diseases was attributed not only to the system of control at domestic ports but also to the system of medical inspection maintained at foreign ports from which such diseases are likely to spread.

An outbreak of cholera in the Philippine Islands in May, 1930, became so serious that a maritime quaran-

tine against the Islands was established as a means of protection against the transmission of infection, particularly through Oriental steerage passengers to the Hawaiian Islands and the Pacific coast ports of the United States.

Introduction of epidemic cerebrospinal meningitis from Oriental ports was effectually controlled by the continuance of special regulations, prescribed last year, governing the transportation of passengers from such ports to the United States.

The system of medical examination of prospective immigrants in the country of origin, now in effect in the principal European countries, has proved so satisfactory that it is proposed to extend it to other foreign nations.—*Health News*, Mar. 9, 1931.

DIAGNOSIS OF HERPES ZOSTER OPHTHALMICUS*

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HERPES zoster ophthalmicus is an affection of the first division of the trigeminal nerve. It manifests itself by severe neuralgic pain and vesicular formation along the terminal twigs of the nerve supplying the skin of the forehead and ocular structures.

The condition calls for special attention because of the following reasons: it is not rare, it frequently presents diagnostic difficulties which may lead to confusion, and its eye complications may be disastrous. These points are brought out in the three cases presented in this paper. It is also important to emphasize that these cases do not, as a rule, come to the oculist first, but to the family doctor, and the responsibility of diagnosis may rest upon his shoulders.

In general the course is as follows: It is usually seen in people past middle age and begins without apparent cause. Violent neuralgic pains in the eye and forehead precede by several days the appearance of the herpes. The skin is very sensitive and the pain can be controlled only with great difficulty.

After a period of time varying from several hours to days, the skin of the lids and of the forehead becomes red and swollen and upon this area the vesicles appear. The vesicles may be arranged in groups or may be uniformly distributed. They most frequently occupy the region of distribution of the first branch of the trigeminal nerve supplying the upper lid and forehead. It is a characteristic feature of this condition that the affection is almost always confined to one side and does not extend beyond the midline of the head. All of the vesicles may be formed at once, but sometimes they appear in successive crops.

The next step in the course of the condition is that the serous contents of the vesicles become cloudy, then purulent, and finally dry into crusts. This process requires several days, so the period of eruption takes in all about three weeks. As the loss of substance caused by the formation of vesicles extends into the corium, scars are usually left, from the character of which it can long be recognized that the patient has suffered from an

attack of herpes zoster. Herpes zoster gangrenosus is produced in rare cases by the spreading of the ulcers in consequence of secondary infection.

The serious aspect of the affection is due to the eye involvement which accompanies it. There is an increased sensitiveness to light and an increased flow of tears. The conjunctiva is affected and vesicles may appear upon it. The cornea may have herpetic eruptions which break down, leaving ulcers, and if they become infected, serious consequences may result. In other cases deep infiltrates develop which may be permanent. Through the paralysis of the trigeminus a neuro-paralytic condition of the cornea develops in which there is an absence of sensation on the cornea. An iritis or iridocyclitis may be associated with corneal disease or be independent, and, if not cared for, synechiae and other disastrous results may follow. Other less frequent findings are scleritis, optic atrophy, lowered intraocular tension and paresis of the abducens and ocular motor nerves which result in defective ocular movement.

Herpes zoster ophthalmicus may lead to difficulties in diagnosis. It may be confused with erysipelas, supra-orbital neuralgia, frontal sinus disease, orbital abscess, migraine headaches, glaucoma, iridocyclitis, ulceration of cornea, and conjunctivitis.

Erysipelas may be considered because of the swollen and reddened condition of the skin and because the lymph-nodes near the ear are swollen; but the arrangement of the vesicles, the fact that the medial line is rarely, if ever, passed over, along with the neuralgic pains, immediately indicates the diagnosis of herpes.

Supra-orbital neuritis is suggested because of the intense pain and is differentiated from herpes because of the lack of redness, swelling of the skin, and later by absence of eruptions and eye symptoms as seen in herpes.

Frontal sinus disease can be diagnosed by the nasal symptoms and findings of acute infection, obstruction, and discharge. The sinus may be cloudy on transillumination or X-ray and relieved by suction. The pain is of a different nature—a pressure pain.

*Presented at Asbury Hospital Staff Meeting, Minneapolis, September, 1929

Migraine usually has a history of previous attacks and may be preceded by an aura, may not be unilateral and the pain may extend to the base of the head. There is an absence of redness, swelling, and eruption on the skin.

Glaucoma in the acute stage presents difficulty in diagnosis. In glaucoma the eye symptoms overshadow everything. The pain is intense, the globe extremely tender, the pupil partially dilated and oval, the vision is nil, the congestion of the eye is venous, and the reflex from the pupil greenish.

Iritis due to other causes than herpes zoster may be confused with the iritis of herpes zoster. The diagnosis is not difficult as the pain is not so intense nor so widely distributed. The skin is not affected and it is more gradual in onset than the iritis due to herpes zoster.

Ulcer of the cornea may lead one to think of herpes, but when not associated with it, the pain is not so intense and the cutaneous area not involved. The cause is usually evident.

Conjunctivitis may be extremely painful and cause the lids to swell. However, the presence of pus and the appearance of the conjunctiva are diagnostic.

This very briefly covers some of the conditions which should be thought of when making a diagnosis of herpes zoster ophthalmicus. Herpes can usually be diagnosed at an early stage by elimination.

The following cases emphasize in a more concrete way some of the diagnostic difficulties encountered and complications which may arise. Only the essential facts are mentioned.

Case 1.—The patient was a woman seventy-two years of age, who, previous to the attack, had been in good health. One afternoon she experienced a sense of discomfort in the region of the left eye. This progressively increased in degree and became so intense by evening that a physician was summoned. Local measures were of no avail and when examined a few hours later the patient was in agony and complained of a sharp knife-like pain in the eye and shooting to the forehead. The pain was somewhat lessened by morphine. Examination revealed the lids of the left eye swollen and red, the conjunctiva hyperemic, the eyeball deeply inflamed, the cornea clear, and the pupil rather sluggish in action. The picture suggested most an iridocyclitis, orbital abscess, frontal sinus, or an acute glaucoma. No secretion was present and the tension normal. The picture remained the same for two days and then a reddening and swelling of the skin of the forehead appeared and was sharply limited to the left side. A few hours later vesicles made their appearance, distributed over the forehead and upper lid. The cornea showed several small vesicles which ruptured shortly after, causing ulceration. In spite of all precautions these became infected to a slight degree. The healing process and neuralgic pains continued for months in-

termittently. The corneal opacities were superficial and gradually disappeared.

This case illustrates the intensity of the onset and the difficulty in early diagnosis. The patient was seen before the eruption and at that time, with only the symptoms of frontal pain and congestion of the eye, it was necessary to differentiate between herpes, glaucoma, supraorbital neuritis, migraine, frontal sinus infection, iritis or iridocyclitis, corneal ulcer, conjunctivitis, and orbital abscess.

Case 2.—The patient was a male sixty-two years of age, with a past history which was not significant. The process started in the usual way with severe ocular pain shooting to the forehead. Because of the redness of the eye the condition was treated as an acute conjunctivitis. As it did not seem to improve, the patient decided to consult the writer. Examination at this time showed an acute iritis with the iris bound down over the pupil area. The vision was almost abolished in the eye and this was of serious importance because the other was blind (an old chorioretinitis). There was no evidence of eruption at this time, which was two days after the onset. Shortly after this, the eruption appeared. By injecting atropine and scopolamin beneath the conjunctiva close to the cornea, the synechiae were broken enough so that a clear pupil was obtained. The case went on to an uneventful recovery with normal vision, although he still complains at times of knife-like pain in this region.

This case illustrates how a mis-diagnosis may be made and the eye be seriously endangered. The case was not recognized as herpes, the iritis which developed was overlooked and posterior synechiae developed. This was especially important because the other eye was blind.

Case 3.—The patient was a female, aged 67, who had been in good health. The onset of the condition was not unusual and the usual redness and irritation of the eye appeared after a few days. Complications did not appear until after the eruption, when a cloudiness of the cornea in the central area was noted. This was a deep infiltrate of marked density. No ulceration developed. When seen by the writer the condition had existed several months. There was no improvement on treatment.

This case illustrates how the cornea may become affected without ulceration, resulting in an opacity which may permanently damage the vision.

SUMMARY

Herpes zoster is seen frequently enough in practice to warrant special attention. The condition in the early stage presents difficulties in diagnosis. Disastrous results may follow if the condition is not recognized, because eye complications which develop may lead to serious results if not treated early. The cases presented emphasize this statement.

1937 Medical Arts Bldg.

THE ECONOMIC IMPORTANCE OF SQUINT IN CHILDREN AND ITS EFFECT IN AFTER YEARS*

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THE early diagnosis and treatment of incipient tuberculosis has markedly reduced the disability of this disease. The early diagnosis of cancer is the most effective means of saving the life of the patient. The early diagnosis and treatment of squint is equally important if the vision of both eyes is to be preserved. It is very discouraging to see a young adult for the first time and admit that he is beyond the age where it is possible to restore the vision of his crossed eye. With early training the vision in both eyes is retained and the physician and mother are both amply rewarded in being able to send the child into the world with two seeing eyes.

Binocular single vision is the result of fusion of two separate images by the brain centers. Diplopia is the production of two separate images that cannot be fused. Diplopia causes discomfort to the individual. Patients with squint do not complain of diplopia because there is a mental suppression of the image from the deviating eye. In all cases of squint, fusion of the image is suppressed for the comfort of the individual. After the suppression of fusion has gone on for a period of time it becomes permanent, with the result that the deviating eye is functionally blind. This loss of vision of one eye is the fundamental question for consideration. Parents are concerned chiefly with the cosmetic result of squint, which is secondary in comparison to the loss of vision. Many parents are astounded as they follow the examination of the child and learn that he has but one useful eye.

Amblyopia of a true congenital type is not the rule. Birth injuries may produce macula lesions with the loss of vision and deviation of one eye. The greatest loss of vision is usually found in cases of convergent squint. In divergent squint there may be a partial loss of the vision of one eye; while in the alternating type the vision is usually equal in both eyes and may be normal.

Worth has tabulated the final visual acuity, after all possible means had been used to improve it, of the deviating eye in 985 cases of constant

unilateral convergent squint (Table 1). This summary indicates that squint is not congenital. He has demonstrated that improvement of this defect is possible when the patient is seen before the power of fusion is lost.

Important factors of squint include the age of onset, whether it is the result of an illness or heredity. Many times we will be able to discover visual defects of one eye in either the father or mother. It is true that many cases of squint follow an illness, as measles, chicken-pox or scarlet fever, in which the general health of the patient has been impaired.

All cases of constant squint should be examined for any possible refractive error. No manifest refraction is possible in small children. All cases must be examined objectively after the instillation of atropine for at least three days. For cases of convergent squint nearly a full correction is prescribed. The majority of these patients are far sighted and the use of glasses readily improves the visual acuity. The use of atropine is the essential factor in the examination. It is the author's rule to prescribe glasses for all of these patients as soon as the patient is able to walk. If no improvement is manifest within six months glasses alone will not relieve the squint. The treatment of any squint case is never ended by the prescribing of glasses. Often we see older children who have worn glasses since they were one to three years of age and they later come in with one blind eye and the parents are under the impression that they have done all that is necessary because they have not been instructed otherwise.

There are several ways of improving the vision of the squinting eye. Atropine instilled in the seeing eye paralyzes the accommodation and theoretically compels the patient to use the squinting eye. On the other hand in many cases the vision of the eye under atropine is still better than in the squinting eye and the purpose of the treatment is lost. Sometimes the glass over the straight eye is frosted. This form of treatment usually results in the child removing the glasses and defeats its purpose. The most effective way

*Presented at the annual meeting of the Minnesota State Medical Association, Duluth, July 15, 1930.

TABLE 1 (Worth)

	20/20	20/30 to 20/40	20/50 to 20/70	20/100 to 20/200	Less than 20/200	Fixation lost irre- coverably
Cases seen first when the patient had squinted constantly during less than one-eighth of his or her life.	165	17	9	2	0	0
Cases seen first when the patient had squinted constantly during more than one-eighth and less than one-half of his or her life.	73	61	28	14	5	7
Cases seen first when the patient had squinted constantly during more than one-half of his or her life.	14	28	90	102	179	191

of compelling the child to use the squinting eye is to place a bandage with adhesive plaster over the straight eye. This is less easily removed and produces a complete occlusion of the seeing eye. In order to improve the visual acuity of the squinting eye, occlusion training must be carried over a considerable period of time. Asking the mother to bandage the seeing eye for a short time each day is rather ineffective, while if the bandage is worn for a week by intervals marked improvement of the visual acuity in the deviating eye is noted. The purpose of this treatment is well understood by our school nurses and teachers. The teacher's encouragement is a valuable assistance. The prescribing of glasses and the occlusion of one eye are the means at hand for retaining the visual acuity of the squinting eye.

With the deviation of one eye there must be two separate images formed with all its discomfort, or the visual impression of the eye must be suppressed. Suppression is nature's means of relieving double vision in the case of squint. The development of the fusion sense is brought about

by the use of the amblyoscope. By this device part of a picture is seen by each eye separately and in order to make a single picture fusion must take place. Ten to fifteen minute exercises each day will stimulate this psychic function.

Some mothers who have sufficient time and take proper interest in the welfare of their child can give these exercises at home. Mothers with large families can not be expected to carry out these exercises. It is even difficult for some patients to come to the office often enough to make this training effective.

In those cases in which visual acuity is not improved by the wearing of glasses and the angle of deviation still persists in spite of glasses, occlusion and fusion training, early operation should be instituted. When the angle of deviation has been eliminated or markedly reduced by operation, further treatment for fusion and improvement of the visual acuity is more effective.

There is an age limit beyond which the treatment of squint becomes ineffective, because after the age of eight or ten years it is quite impossi-

TABLE 2

A SUMMARY OF THE STRABISMUS COUNT MADE BY THE NURSES OF THE DULUTH PUBLIC SCHOOLS 1929-1930 (Dr. J. M. Robinson)

Enrollment	Strabismus Count	Internal Strabismus	20/40 or better	20/50 to 20/100	20/100 or worse	Glasses	Operated	Atropine Treatment	Exclusion
2350	75	54	43	15	14	38	5	0	4
2358	54	47	29	18	14	21	3	16	2
1518	33	26	18	13	2	27	2	0	2
2074	38	24	0	0	0	24	4	0	0
2100	45	37	29	13	3	25	1	0	4
1853	43	29	0	0	0	0	3	0	3
12,253	288	217	119	59	33	135	18	16	15

ble to re-educate the fusion sense. The most effective period for treatment must be the pre-school age.

TABLE 3

PERCENTAGE LOSS OF VISUAL EFFICIENCY CORRESPONDING TO SNELLEN NOTATIONS FOR DISTANT AS RECOMMENDED BY THE MINNESOTA ACADEMY OF OPHTHALMOLOGY

Vision after Injury	Percentage of Loss	Maximum Compensation
20/20	Normal	
20/25	5	\$ 100.00
20/30	10	200.00
20/40	20	400.00
20/50	25	500.00
20/60	33.3	666.65
20/70	40	800.00
20/80	50	1000.00
20/100	75	1500.00
20/120	85	1700.00
20/200	100	2000.00

A study has been made of strabismus cases in the Duluth public schools (Table 2). There are 12,253 in the grade schools of the city. Out of this number 288, or 2.75 per cent, are suffering from squint. Of these, 217 are convergent squint. The visual acuities of the squinting eye of 211 of these cases are as follows: vision of 20/20 to 20/40, 119 cases; 20/50 to 20/100, 59 cases; and vision of 20/100 or less, 33 cases. These pupils ranged in age from six to approximately twelve years. It will be noted that less than one-half of them wear glasses. A small percentage of them have been treated by atropine or occlusion of the fixing eye, or by operation. The work of the nurse is difficult because of the indifference on the part of parents. The seriousness of the visual defects of these children might be compared with the visual loss sustained by injury (Table 3). The percentage loss of vision of one eye and compensation as recommended by the Minnesota Academy of Ophthalmology is tabulated. Visual acuity of 20/200 or less is considered industrially blind. A patient industrially blind receives a maximum compensation for one hundred weeks plus a healing period of twenty-five weeks at twenty dollars per week and a minimum fee of eight dollars per week for the same period. Thus for a total loss of vision in one eye a patient would receive a maximum of twenty-five hundred dollars. Injury resulting in reduction of vision to 20/40 by the Snellen type is calculated as 20 per cent loss of vision, which entitles the patient to five hundred

dollars. There were in the Duluth public schools this year ninety-two children who have a functional defect of one eye of at least 20/40. The majority of these children are doomed to go through life with only one useful eye. This statement is made because of the facts brought out by a prominent mining company.

A survey (Table 4) of a prominent mining company of 4,424 men is of interest because it includes men of a variety of trades. Of this number there were 277 men (referred to Dr. F. T. Slyfield) with vision of 20/100 or less in one or both eyes. There were sixty-two men with vision of 20/70 or better in one or both eyes. Of 339 there were thirty-four with a vision of 20/100 or less in one eye due to an early squint and loss of vision from disuse. All these men would be unable to gain employment if they were new applicants. Of the thirty-four only nine still had an outward deviation and only six had an internal deviation. On the other hand, in all of the cases of blindness from disuse the visual acuity was less than 20/100 in the previously squinting eye, or, in other words, these men constitute an industrial hazard, because they possess but one functioning eye.

Some of the local industries (Table 5) require visual tests and safe visual acuity is necessary in order to gain employment. The majority of young men who have suffered from squint and the loss of vision of one eye will be unable to gain employment in any of these industries. There will be an ever increasing demand especially for vision by many employers. This places a serious handicap in the case of the boy in the beginning of his career. Many parents if they knew the seriousness of the study would be less indifferent to the welfare of their children's eyes.

As the demand for safety increases, greater stress is placed on the physical ability of employees. Not only are young men being refused employment because of visual defects but old employees must measure up to certain visual requirements. As the result of physical examinations by Dr. F. F. Slyfield (Table 6), from January 1, 1929, to January 1, 1930, there were eleven railroad employees in the city of Duluth with a marked visual defect of one eye from squint sufficient to cost these men their positions.

A young man with defective vision of one eye should never seek employment in a hazardous industry. If by chance the vision of his seeing eye should be destroyed by accident this man is

TABLE 4

A SURVEY OF APRIL AND MAY, 1929, BY A PROMINENT MINING COMPANY (Dr. F. F. Slyfield)

Total number of men employed.....	4,424
Total number of men referred for examination and refraction.....	339
Approximately 70 to 75 per cent of these men examined had never worn glasses before.	
Number of men with vision 20/100 or less in one or both eyes.....	277 or 6.2 per cent
Number of men with vision 20/70 to 20/100 in one or both eyes.....	62 or 1.4 per cent
339	
Total number of old employees with amblyopia ex-anopsia.....	34 or 10 per cent
Total number of old employees with external strabismus.....	9 or 2.6 per cent
Total number of old employees with internal strabismus.....	6 or 1.7 per cent

Amblyopia Ex-Anopsia

Occupation	Uncorrected Vision		Corrected Vision		Cause of Defect
	Right Eye	Left Eye	Right Eye	Left Eye	
Clerk	20/40	L. P.	20/20	L. P.	External strabismus, amblyopia ex-anopsia, left eye
?	20/25	20/200	20/20	20/70	Amblyopia ex-anopsia
S. S. Fire	20/25	Fingers 4 feet	20/20	Fingers 20 feet	Amblyopia, ex-anopsia, left eye
Boilermaker	20/200	Fingers 5 feet	20/30	Fingers 5 feet	Amblyopia, ex-anopsia, left eye
Pitman	20/30	20/100	20/25	20/100	Amblyopia, ex-anopsia, left eye
Trackman	20/200	20/50	20/200	20/25	Amblyopia ex-anopsia, right eye
Chip taker	L. P.	20/200	L. P.	20/25	Internal strabismus, amblyopia ex-anopsia, right eye
Sampler	5/200	20/30	15/200	20/20	Amblyopia ex-anopsia, right eye
Watchman	L. P.	20/40	L. P.	20/25	Amblyopia ex-anopsia, right eye
Miner	20/60	Fingers 10 feet	20/25	Fingers 10 feet	Amblyopia, ex-anopsia, left eye
Powderman	10/200	20/45	10/200	20/30	Amblyopia ex-anopsia, left eye; external strabismus, right eye
Motorman	20/25	Fingers 5 feet	20/20	20/200	Amblyopia, ex-anopsia, left eye
Policeman	20/30	Fingers 5 feet	20/20	Fingers 5 feet	Amblyopia ex-anopsia, right eye
Miner	20/30	20/200	20/20	20/100	Amblyopia, ex-anopsia, left eye
Miner	20/40	20/100	20/20	20/100	Amblyopia, ex-anopsia, left eye
Laborer	20/60	20/30	20/60	20/20	Amblyopia ex-anopsia, external strabismus, right eye
?	10/200	20/200	20/200	20/20	Amblyopia ex-anopsia, right eye
	Fingers 4 feet	10/200	Fingers 4 feet	20/70	Amblyopia ex-anopsia, right eye
	20/200	20/30	20/100	20/20	Amblyopia ex-anopsia, right eye
	20/200	Fingers 5 feet	20/30	5/200	Amblyopia, ex-anopsia, left eye
	20/200	20/200	20/20	20/100	Amblyopia, ex-anopsia, left eye
	20/200	20/25	20/100	20/20	Amblyopia ex-anopsia, right eye
	20/25	20/200	20/20	20/200	Amblyopia ex-anopsia and internal strabismus, left eye
	20/50	Fingers 5 feet	20/30	20/100	Amblyopia, ex-anopsia, left eye
	10/100	9/200	20/30	20/100	Amblyopia, ex-anopsia, left eye
Cyc. driller	10/100	20/25	20/200	20/20	Amblyopia ex-anopsia, right eye
Laborer	20/70	Fingers 6 feet	No correction		Amblyopia ex-anopsia

TABLE 4—Continued
A SURVEY OF APRIL AND MAY, 1929, BY A PROMINENT MINING COMPANY (Dr. F. F. Slyfield)

Occupation	Uncorrected Vision		Corrected Vision		Cause of Defect
	Right Eye	Left Eye	Right Eye	Left Eye	
Miner	10/200	20/20	10/200	20/20	Amblyopia ex-anopsia, right eye
? Miner	20/100	20/30	20/50	20/20	External strabismus
? Miner	20/100	20/50	20/25	20/20	Internal strabismus, right eye
Trackman	Fingers 10 feet	20/200	Fingers 10 feet	20/45	Internal strabismus, right eye; amblyopia ex-anopsia
Locomotive engineer	20/200	20/20	20/200	20/20	Amblyopia ex-anopsia
Pit foreman	5/200	20/25	0	20/20	Amblyopia ex-anopsia
? Miner	20/50	20/200	20/40	20/40	Myopia, right eye; internal strabismus
Miner	20/30	20/200	20/25	20/70	Amblyopia ex-anopsia
Miner	20/20	Hand 5 feet	20/20	20/200	Corneal scar, left eye; internal strabismus
Miner	Blind	20/30	Blind	20/20	External strabismus; opacity in lens
Miner	20/100	20/100	20/50	20/50	Hyperopia and amblyopia ex-anopsia
Timekeeper	L. P.	20/30	L. P.	20/20	External strabismus right eye; practically blind
Miner	Blind	20/200	Blind	20/200	Cataract, right eye; amblyopia ex-anopsia, left eye
	20/100	5/200	20/30	20/200	Hyperopia, astigmatism, left eye; amblyopia ex-anopsia

20/70 or less—no cases of amblyopia ex-anopsia

TABLE 5
SOME VISUAL REQUIREMENTS IN INDUSTRY

Employer	Minimum Visual Requirements	
	Without Glasses	With Glasses
A Street Railway Company All employees	20/30 — 20/25	All employees
One Railway Company Old employees All applicants	20/40 — 20/40 20/20 — 20/20	
A Telephone Company (2) Motor drivers	20/50 — 20/200 20/30 — 20/40	20/30 — 20/50 20/20 — 20/30
A City Civil Service Truckmen—tradesmen—library—water and light —outside labor (2) Policemen and firemen	20/20 — 20/20 20/20 — 20/20	20/20 — 20/20 Uncorrected
Some departments of the Federal Civil Service		20/30 — 20/20
Aviation (1) (2) (3)	20/20 — 20/20 20/40 — 20/40 20/50 — 20/50	20/20 — 20/20 20/20 — 20/20
A Steel Company	20/20 — 20/60	
Seamen to Captains	20/40 — 20/70	20/20 — 20/40
Chauffeurs and truck drivers	20/20 — 20/30	20/30 — 20/30

TABLE 6

TOTAL NUMBER OF REJECTIONS DUE TO AMBLYOPIA EX-ANOPSIA.....11
 Of which there were two cases of Internal Strabismus (Dr. F. F. Slyfield)

Age	Occupation	Uncorrected vision		Corrected Vision		Basis for Rejection
		Right eye	Left eye	Right eye	Left eye	
58 (old employee)	Section foreman	20/50	20/200	20/30	20/70	Amblyopia ex-anopsia, left eye; hyperopia
52 (old employee)	Section foreman	20/150	20/100	20/55	20/40	Amblyopia ex-anopsia
70 (old employee)	Hill conductor	20/20	Fingers only			Amblyopia ex-anopsia, left eye; internal strabismus
61? (old employee)	Section foreman	20/200	20/200	20/40	20/60	Amblyopia ex-anopsia, left eye
40 (old employee)	Conductor	20/30	20/100	20/20	20/50	Amblyopia ex-anopsia
65 (old employee)	Lampman	20/30	8/200	20/20	10/100	Amblyopia ex-anopsia, hyperopia, internal strabismus; otosclerosis, both ears
37 (old employee)	Section foreman	20/30	20/200	20/25	20/200	Amblyopia ex-anopsia, left eye
51? (old employee)	Lampman	20/200	20/100	20/70	20/40	High degree of hyperopia; amblyopia ex-anopsia, right eye
31 (old employee)	Machinist helper Apprentice	20/200	20/20	20/100	20/20	Amblyopia ex-anopsia, right eye
53 (old employee)	Conductor	10/200	20/200	20/200	20/40	Amblyopia ex-anopsia, right eye; high degree hyperopia, left eye
29 (old employee)	Boilermaker helper	20/25	20/100	20/20	20/100	Amblyopia ex-anopsia, left eye

entitled to compensation for the loss of one eye only and if he is industrially blind in the other eye, whether from squint or any other cause, he is entitled to compensation for permanent total loss of vision which is paid him by the state out of a special fund known as the special compensation fund. Some employers carry their own industrial insurance and they employ safety engineers to eliminate accident. The smaller employer is under a handicap because he has no record of the physical or visual condition of his employees. Following some slight injury the

oculist finds a loss of vision often out of proportion to the severity of the injury. Many times he is unable to submit evidence that the eye is blind from a previous squint and disuse.

SUMMARY

1. Effective treatment of squint must be carried out before the school age.
2. Loss of vision of one eye from squint is a serious handicap.
3. No physician should be guilty of advising parents that the child will outgrow the defect.

THE ASSOCIATION OF PEPTIC ULCER AND CHOLECYSTIC DISEASE*

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THE clinician often is chagrined because of the fact that despite a carefully taken history and detailed laboratory procedures he fails to make a preoperative diagnosis of clinically associated lesions of the gastric or biliary tract.

Hartman and Rivers have recently called attention to associated lesions found at operation in 700 cases clinically diagnosed as duodenal ulcer. The most common lesion was chronic appendicitis (44.4 per cent); subacute appendicitis, cholecystitis and gastric ulcer occurred infrequently. In 375 cases in which gastric ulcer was clinically diagnosed, chronic appendicitis was the major associated lesion, being found in 35.7 per cent of the cases. Carcinomatous ulcers were found in 2.1 per cent of the cases. They pointed out that if the more commonly associated lesions are borne in mind, a diagnosis may be made correctly oftener if a painstakingly evaluated history is taken.

In contrast to the associated lesions of peptic ulcer, Rivers and Hartman recorded the associated lesions found at operation in 879 cases which were clinically diagnosed cholecystitis or cholelithiasis. Subacute appendicitis was the most common associated lesion discovered (29.5 per cent); peptic ulcer was found in only 3.2 per cent. The most significant of the complicating or associated factors discovered during operation was the presence in four cases of carcinoma of the biliary system.

The authors carefully reviewed the case histories but did not find data by which this complication could have been recognized. They concluded that peptic ulcer as a complication of cholecystic disease usually lends itself to diagnosis, that a diagnosis of pancreatitis can only be made tentatively by the surgeon or the clinician, that hepatitis must necessarily be severe before symptoms are manifest, and that a better means of recognizing carcinoma is needed.

Our purpose in making this report is to call attention to the percentage of lesions associated with the different types of operable lesions in the upper right quadrant, regardless of preoperative diagnosis, with the hope of obtaining a correct impression of the actual existence of such associated lesions. The cases were selected for study because the lesions were discovered at the exploration. An attempt was also made to gain, as far as possible, accurate knowledge regarding the actual histopathologic conditions demonstrable in the gallbladder whenever associated disease was found.

MATERIAL USED

The data were obtained from 2,161 operative records. This included 700 cases of duodenal ulcer verified surgically, 435 cases of gastric ulcer, and 1,026 cases of cholecystic disease. Cholecystic disease was found in ninety-five (13.6 per cent) of the cases of duodenal ulcer. In the cases of gastric ulcer pathologic changes were found in the gallbladder or ducts in thirty-four cases (7.8 per cent). In the cases of cholecystitis or cholelithiasis only seventy-three (7.1 per cent) showed evidence of a peptic lesion. The 202 cases including both a peptic ulcer and a lesion in the gallbladder or ducts were studied in detail.

DUODENAL ULCER ASSOCIATED WITH CHOLECYSTIC DISEASE

In ninety-five of the 700 cases of duodenal ulcer in which operation was performed at The Mayo Clinic there was evidence of disease in the gallbladder or ducts.

In a group of forty cases (42 per cent) in which the disease of the gallbladder was eradicated by operation and studied pathologically, the lesions were as follows: chronic cholecystitis with stones in twenty-five cases, chronic cholecystitis without stones in ten cases, subacute

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cholecystitis with stones in four cases, and sub-acute cholecystitis without stones in one case.

In a group of twenty-six cases (27 per cent) in which removal of the gallbladder was not deemed advisable because of increased surgical

cases, abnormal color in two cases, edema in one case, and hour-glass contraction after the gallbladder had perforated through at the margin of the liver in one case.

In a group of six cases (6 per cent) which

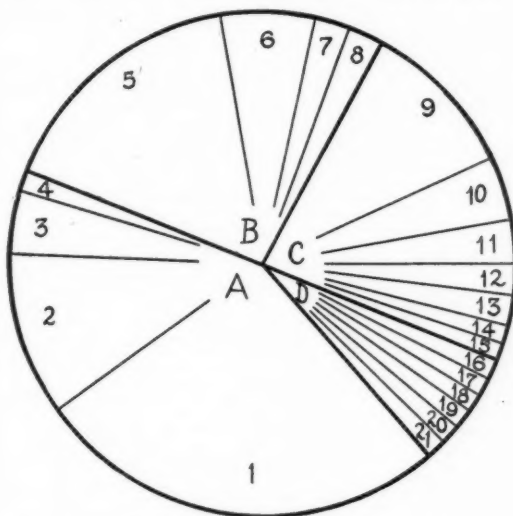


Fig. 1. Duodenal ulcer with cholecystic disease (ninety-five cases). Section A, treated surgically: (1) chronic cholecystitis with stones, twenty-five cases (26.3 per cent); (2) chronic cholecystitis without stones, ten cases (10.5 per cent); (3) sub-acute cholecystitis with stones, four cases (4.2 per cent), and (4) sub-acute cholecystitis without stones, one case (1 per cent). Total 42.0 per cent.

Section B, not advisable to treat surgically at this time because of surgical risk: (5) thick-walled gallbladder, sixteen cases (16.3 per cent); (6) cholecystitis present, six cases (6.3 per cent); (7) benign tumor in fundus of gallbladder, two cases (2.1 per cent), and (8) gallstones present, two cases (2.1 per cent). Total 27.4 per cent.

Section C, cholecystic disease suspected from notes taken at operation: (9) "adhesions about gallbladder," ten cases (10.5 per cent); (10) gallbladder "enlarged," four cases (4.2 per cent); (11) gallbladder "distended," three cases (3.2 per cent); (12) gallbladder "tense," two cases (2.1 per cent); (13) gallbladder "not normal color," two cases (2.1 per cent); (14) gallbladder "edematous," one case (1 per cent), and (15) gallbladder perforated through at margin of liver forming hour-glass, one case (1 per cent). Total 24.2 per cent.

Section D, Miscellaneous: (16) malignant stricture of the common bile duct, one case (1 per cent); (17) benign mass around neck of the gallbladder and common bile duct, one case (1 per cent); (18) enlarged glands along common bile duct, one case (1 per cent); (19) benign stricture of common bile duct, previous cholecystectomy, one case (1 per cent); (20) negative exploration of the common bile duct, previous cholecystectomy, one case (1 per cent), and (21) residual hepatitis, previous cholecystectomy, one case (1 per cent). Total 6.3 per cent.

risk, the lesions were: a thick-walled gallbladder in sixteen cases, cholecystitis in six cases, benign tumor of the fundus of the gallbladder in two cases, and gallstones in an obviously diseased gallbladder in two cases.

In a group of twenty-three cases (24 per cent) in which the surgical diagnosis was questionable, adhesions about the gallbladder were found in ten cases, enlargement of the gallbladder in four cases, distention in three cases, tenseness in two

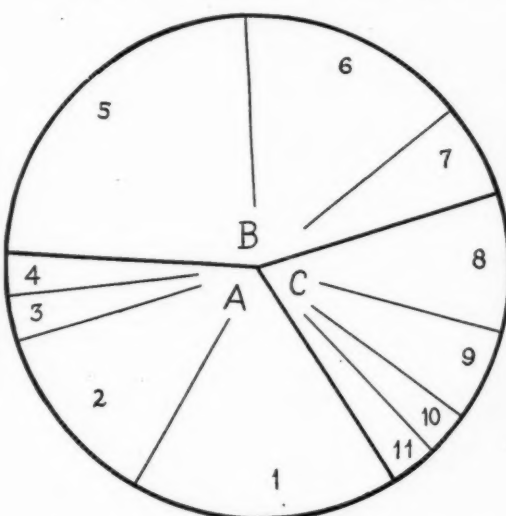


Fig. 2. Gastric ulcer with cholecystic disease (thirty-four cases). Section A, treated surgically: (1) chronic cholecystitis with stones, six cases (17.6 per cent); (2) chronic cholecystitis without stones, four cases (11.8 per cent); (3) sub-acute cholecystitis with stones, one case (2.9 per cent), and (4) sub-acute cholecystitis without stones, one case (2.9 per cent). Total 35.2 per cent.

Section B, not advisable to treat surgically at this time because of surgical risk: (5) gallbladder thick-walled, eight cases (23.5 per cent); (6) gallstones present, five cases (14.7 per cent), and (7) cholecystitis present, two cases (5.9 per cent). Total 44.1 per cent.

Section C, cholecystic disease suspected from notes taken at operation: (8) "adhesions about gallbladder," three cases (8.8 per cent); (9) gallbladder "enlarged," two cases (5.9 per cent); (10) gallbladder "tense," one case (2.9 per cent), and (11) "practically a congenital absence of the gallbladder, liver enlarged," one case (2.9 per cent). Total 20.5 per cent.

could not be included in any of the preceding three groups, the lesions were as follows: malignant stricture of the common bile duct in one case, benign mass in the wall of the gallbladder in one case, enlarged lymph nodes in one case, and (in three cases in which cholecystectomy and subsequently operation for duodenal ulcer were performed) benign stricture of the common bile duct in one case, questionably negative exploration of the common bile duct in one case, and residual hepatitis in one case.

GASTRIC ULCER ASSOCIATED WITH CHOLECYSTIC DISEASE

In thirty-four of a series of 435 cases of gastric ulcer in which operation was performed and which were known to be benign, disease of the gallbladder was associated.

In a group of twelve cases (35 per cent) operation was performed on the gallbladder. The lesions in this group were as follows: chronic cholecystitis with stones in six cases, cholecystitis without stones in four cases, subacute chole-

surgeon's observation at operation indicated disease or anomalous lesions resident in the gallbladder, as follows: adhesions about the gallbladder in three cases, enlargement of the gallbladder in two cases, tenseness of the gallbladder in one case, and almost complete congenital absence of the gallbladder with enlargement of the liver in one case.

CHOLECYSTIC DISEASE ASSOCIATED WITH PEPTIC ULCER

In seventy-three of a series of 1,026 cases in which operation was performed for cholecystic disease, peptic ulcer was found to be associated.

In a group of forty-eight cases (66 per cent) it was thought advisable to deal with the associated ulcer surgically. An analysis of the ulcers included in this group was as follows: chronic duodenal ulcer in twenty-one cases, subacute duodenal ulcer in seventeen cases, chronic duodenal ulcer with duodenitis in four cases, duodenitis alone in three cases, jejunal ulcer (after posterior gastro-enterostomy) in one case, pyloric obstruction with suspected ulcer in one case, and gastric ulcer which was questionably malignant in one case.

In a group of twelve cases (16 per cent) the surgeon found definite disease of the stomach and duodenum but felt that further surgical procedures were contra-indicated because of increase of the operative risk; in one case surgical procedures were not carried out because of obvious inoperability of the associated lesion. In this group the following lesions were found: chronic duodenal ulcer in eight cases, chronic gastric ulcer in two cases, ulcerated duodenitis in one case, and a probably malignant lesion of the posterior wall of the stomach in one case.

In a group of seven cases (10 per cent) healed gastric or duodenal lesions were found: scar in the duodenum in four cases, healed duodenal ulcer in two cases, and inactive duodenal ulcer and gastric ulcer in one case.

In a group of six cases (8 per cent) the surgical dictation led to the suspicion of an associated ulcer, but this was not definite. The lesions in this group were as follows: questionable duodenal ulcer in one case, questionable duodenitis in one case, a thick-walled duodenum in two cases, considerable inflammatory reaction in the duodenum in the area of the gallbladder in one case, and a thickened pylorus and thick-

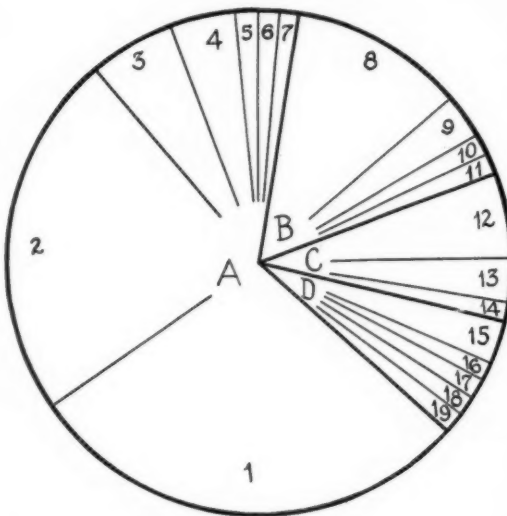


Fig. 3. Cholecystic disease with peptic ulcer (seventy-three cases). Section A, treated surgically: (1) chronic duodenal ulcer, twenty-one cases (28.8 per cent); (2) subacute duodenal ulcer, seventeen cases (23.3 per cent); (3) chronic duodenal ulcer with duodenitis, four cases (5.5 per cent); (4) duodenitis only, three cases (4.1 per cent); (5) jejunal ulcer, previous gastro-enterostomy, one case (1.4 per cent); (6) pyloric obstruction due to ulcer (7), previous excision of gastric ulcer, one case (1.4 per cent), and (7) gastric ulcer, questionable malignancy, one case (1.4 per cent). Total 65.9 per cent.

Section B, not advisable to treat surgically at this time because of surgical risk: (8) chronic duodenal ulcer, eight cases (10.9 per cent); (9) chronic gastric ulcer, two cases (2.7 per cent); (10) ulcerated duodenitis, one case (1.4 per cent), and (11) malignant lesion of the stomach (7), posterior wall at cardia, one case (1.4 per cent). Total 16.4 per cent.

Section C, scar or healed ulcer: (12) scar in duodenum, four cases (5.5 per cent); (13) healed duodenal ulcer, two cases (2.7 per cent), and (14) gastric and duodenal ulcers, both inactive, one case (1.4 per cent). Total 9.6 per cent.

Section D, ulcer suspected from notes taken at operation: (15) duodenum "thick-walled," one case (1.4 per cent); (16) questionable duodenitis, one case (1.4 per cent); (17) questionable duodenal ulcer, one case (1.4 per cent); (18) considerable "inflammatory reaction" in duodenum "in area of gallbladder," one case (1.4 per cent), and (19) thickened pylorus and stomach thick-walled, previous history of obstruction, one case (1.4 per cent). Total 7.0 per cent.

cystitis with stones in one case, and subacute cholecystitis without stones in one case. Removed specimens were studied pathologically.

In a group of fifteen cases (44 per cent) the surgeon made a definite anatomic diagnosis of cholecystic disease but did not perform cholecystectomy because of increased surgical risk. The lesions were: thick-walled gallbladder in eight cases, gallstones in five cases, and chronic cholecystitis in two cases.

In a group of seven cases (21 per cent) the

walled stomach (due to previous obstruction) in one case.

COMMENT

It is sometimes difficult, or even impossible, to make a differential diagnosis of peptic ulcer or of cholecystitis. The association of the two conditions presents further difficulties, it frequently being difficult to determine which disease is responsible for the more serious symptoms. In 37 per cent of the cases of surgically verified subacute or acute duodenal ulcer, the history had sufficient characteristics usually attributed to cholecystic disease to prompt a preoperative diagnosis of associated cholecystic disease, and this, despite the fact that there was definite roentgenologic evidence of duodenal ulcer. In a review of a series of cases⁴ in which nonulcerating areal inflammatory duodenal lesions were found at operation, a tendency was noted for the patients to have localizing distress in the upper right quadrant. The probability suggests itself that the pain arising from the duodenal wall itself is felt in the upper right quadrant.

Duodenitis and acute or subacute duodenal ulcer, although likely to mimic disease of the gallbladder, usually have definite characteristics of peptic ulcer in that the distress reaches its maximum several hours after the meal and is relieved by the ingestion of food or soda. The pain may be severe and in both instances may be referred into the thorax. Pain referred through to the back is not uncommon in either cholecystic disease or ulcer, particularly if the latter is a penetrating lesion. It is unusual for the pain of ulcer to be referred to the shoulder, but this is rather a common symptom in diseases of the gallbladder.

In acute or subacute cholecystitis, the area of complaint is usually well localized in the upper right quadrant. There is likely to be tenderness and rigidity in the right infracostal area. Tenderness increases as the palpating finger approaches the lower margin of the ribs. The gallbladder may be palpable. The distress is fairly constant and is not relieved by the ingestion of food. On the contrary, this usually intensifies the symptoms for a brief period. There may be much flatulence and a qualitative food relationship, fats and fried foods being especially likely to intensify symptoms. The syndrome lacks the precision and clock-like regularity of that usually

seen in uncomplicated ulcer, and the succession of pain, food and ease is noted several times or many times each day during the period of exacerbation which may last for several weeks.

An icteric or subicteric tint to the skin is frequently noted and a slight elevation of the icterus index or serum bilirubin further tends to localize the disease in the gallbladder or ducts. The vomiting of blood, even in small amounts, or the detection of blood in the stools, is almost certain evidence that the lesion is not in the gallbladder. Roentgenologic investigation may be the deciding factor in making the diagnosis.

The detection of gallstones in the cholecystogram will confirm the diagnosis. Stones becoming impacted in a duct usually produce symptoms sufficiently definite to permit an accurate diagnosis. Even then, there is always the possibility of associated lesions.

The differentiation of chronic disease of the gallbladder with stones or of uncomplicated peptic ulcer is usually not difficult. Blackford and Dwyer called attention to two clinical types of cholecystitis with stones: (1) attacks of gallstone colic for years and then the gradual onset of chronic dyspepsia, and (2) chronic dyspepsia with milder attacks of acute indigestion, often followed by biliary colic. A carefully taken history almost invariably will disclose evidence suggesting the presence of gallstones. The severity of the colic is not so easily forgotten and thus patients as a rule call attention to acute indigestion which they experienced perhaps many years previously.

The pain of gallstone colic usually comes on without much warning and it frequently stops just as quickly, leaving usually, however, residual upper right abdominal tenderness. Often the site of the pain is epigastric, although it may start in the upper right quadrant. Usually it is a deepseated through-and-through pain radiating often into the neck and right shoulder. It is severe, may be lancinating, and is often described "from which there seems to be no escaping except by hypodermics or vomiting." This pain is intensified by associated upper abdominal flatulence which is severe. The breathing seems to be cut off because a deep breath intensifies the symptoms. Emesis occurs at times and the vomitus is usually greenish or yellowish. The attack may terminate quickly, with or without vomiting, but frequently several hypodermics or

even an anesthetic may be necessary to obtain control of the pain.

Occasionally transitory fleeting twinges of upper right abdominal pain are noted by patients with gallstones. These pains are likely to be referred into the back. If the gallstone migrates into the common bile duct, chills, fever and jaundice are frequently added to the symptom of pain.

Uncomplicated peptic ulcer includes nothing as a rule which might be confused with the syndrome of gallstones. The symptoms arising from deep penetration of the wall of the duodenum or stomach may simulate the pain of gallstones, but there are many factors which should help in differentiating the two conditions. The history of previous spells of heartburn, distress after meals, and ease from soda and food, all argue for ulcer. The onset of the pain is usually different. In cases of gallstones the onset is rapid, that is, precipitation from comfort to severe pain, and in cases of ulcer the onset is slower. An exception to this is the occasional acute perforation of an ulcer without preliminary indigestion. This may occur following ingestion of an unusually large meal, an alcoholic debauch or excessive exertion. The picture of a patient with a ruptured peptic ulcer is quite characteristic. The pain is usually extremely severe. It usually starts in the epigastrium, whence it is referred into the thorax or back. Occasionally the pain is in the lower right part of the abdomen. It is described as a persistent, deep-seated, sharp, cutting pain intensified by movement or even by respiration. Prostration is marked, and there may be associated nausea and vomiting. There is extreme tenderness over the epigastrium, and characteristic board-like rigidity of the upper part of the abdomen is almost invariably noticeable. Occasionally there is a shifting dullness in the flanks due to the pressure of free fluid. Hepatic dullness may be obliterated.

It is extremely rare that any condition of the gallbladder would simulate the picture of ruptured ulcer, although occasionally an acutely infected gallbladder will rupture, and resulting peritonitis may cause a mistaken diagnosis. Rupture of the gallbladder, except following trauma, always is a later development in the course of cholecystitis, and a carefully taken history should contain evidence wherewith to make a diagnosis.

Ruptured ulcer almost always occurs in men; acute cholecystic disease occurs much more commonly in women.

The differential diagnosis of noncomplicated chronic peptic ulcer or of chronic cholecystic disease without stones may be difficult. Not that it is difficult to recognize the presence of active chronic peptic ulcer, but the difficulty as a rule is to be certain that there is no associated disease in the gallbladder. It is important to note that not every duodenal deformity signifies ulcer, that not every duodenal ulcer is active, and that not every active ulcer is the cause of the complaints which activated the patient to obtain relief. Symptoms, therefore, should be evaluated with the greatest thoroughness. An uncomplicated active peptic ulcer usually presents a clear-cut syndrome. Great irregularities in the history suggest that the ulcer, if shown to be present by roentgenologic investigation, may not be active, that the ulcer is complicated in some way, or that there is an associated disease elsewhere in the abdomen. The history may decide the point, or further roentgen-ray study of the gallbladder or colon may make the diagnosis clear. Functional disturbances must be ruled out first by carefully taken histories and proper interpretation of symptoms. Hospital observation and a therapeutic test for ulcer usually are of great help in the making of a correct diagnosis. If patients who have the duodenal deformity attributable to ulcer fail to obtain relief from their symptoms even when the diet is bland, and the gastric acidity is adequately controlled, it may be safe to assume that the ulcer is in some way complicated. Even a perforative type of ulcer is usually relieved by the milk-alkali regimen within four or five days. Persistent upper abdominal distress under these conditions would strongly suggest associated cholecystic disease.

The cholecystogram has been of unquestionable value in helping to detect certain instances of cholecystic disease in which the symptoms were very indefinite and in which a diagnosis preoperatively would have been impossible. The so-called reflex of the gallbladder as a cause of indigestion is extremely indefinite. Clinical syndromes have from time to time been presented which are assumed to be diagnostic of chronic disease of the gallbladder. These syndromes may include indefinite epigastric discomfort, following meals, much upper abdominal flatulence,

nausea or vomiting after meals, and belching and bloating after certain types of food such as fats, fried foods, onions, or apples. In our experience such syndromes are unreliable as indications of cholecystic disease. Functional disturbances of the upper part of the digestive tract, constipation, food allergies, and many other conditions are quite as likely to give similar syndromes. There should be some hesitancy in blaming the gallbladder for such syndromes unless the previous history includes localized evidence of more severe and more definite disease in the upper right quadrant.

We have noted the best results following surgical treatment of cholecystic disease in cases in which there was definite clinical evidence of the disease. This is also the observation of Judd, who carefully analyzed the surgical results in various types of cholecystic disease. He found encouraging results in cases in which there were inflammatory changes in the wall of the gallbladder even though these were slight. He stated, however, "If the patient's symptoms were of the chronic dyspeptic type or if the prominent features were soreness, tenderness, and aching in the side, the likelihood of cholecystectomy promoting cure was not great."

There is no doubt that a chronically diseased gallbladder does produce symptoms. The present difficulty seems to arise from attempting to make our syndrome fit the majority of these cases. There are various types of chronic cholecystic disease, and it will become necessary to study these cases separately and carefully to analyze a larger series of histories in each group. Such a study should greatly increase our ability to correlate clinical and histopathologic data, which in turn would obviously increase efficiency in the treatment of cholecystic diseases.

SUMMARY

Evidently cholecystic disease is demonstrable almost twice as frequently in association with duodenal as with gastric ulcer. The propinquity of the duodenum and gallbladder may in part be responsible for this. It is readily conceivable that the inflammatory condition in one organ may extend to and involve to a varying degree the other organ.

Still more striking is the fact that gastric ulcer or thickening in the gastric musculature (gastritis?) was demonstrable as a complication of surgical cholecystic disease only six times in 1,026 cases; benign duodenal lesions were found more than twelve times as commonly as gastric lesions during operation on the gallbladder.

If the relative frequency of these associated conditions is borne in mind, there should be greater accuracy in the proper recognition of such a complication. Not infrequently non-surgical measures instituted for the care of peptic ulcer fail because of the fact that such a lesion is complicated by associated disease in the gallbladder. Every effort should, therefore, be made to make as complete a diagnosis as possible.

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UNUSUAL DEFICIENCY SYNDROME SECONDARY TO DUODENAL OCCLUSION AND ULCERATIVE COLITIS

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IN spite of many precise experimental and clinical studies there is still a great deal of confusion about the exact relationship of the vitamins to deficiency syndromes. Numerous unsuccessful attempts to treat supposed deficiency states with vitamin concentrates indicate that lack of these substances is not alone responsible for the clinical syndrome encountered. This fact is further emphasized by the differences noted between experimental vitamin deficiency and clinical states supposedly due to lack of the same vitamins. Minot, in reviewing the general subject of deficiency disease, called attention to the fact that these conditions are due to a variety of causes, acting individually or combined, and stressed the fact that dietary deficiency syndromes are not always due to lack of vitamins alone, but also to poorly balanced diets, incomplete or low intake of protein, ingestion of an excess of carbohydrate, infection, or altered physiologic mechanisms. When one adopts this broader view of the deficiency syndromes, the probable frequency of abortive, or border-line types of deficiency is at once apparent. The following case is presented to illustrate the multiplicity of symptoms of deficiency disease which may arise from the causes mentioned by Minot.

REPORT OF CASE

A salesman, aged thirty-two years, was admitted to hospital as an emergency case, November 18, 1929. He had traveled to Rochester alone in his car and had collapsed in a local restaurant. On his admission to the hospital he was extremely weak, dehydrated, and in a state bordering on shock. After he had been revived, the following history was obtained: In 1914 he had suffered an attack of acute appendicitis and operation was advised, but he declined to have this done and recovered uneventfully. Following this he became extremely constipated, and shortly afterward he had an attack of marked abdominal cramping, nausea, and vom-

iting following the eating of over-ripe fruit. After this episode, which lasted for about three days, he never had been entirely well. Immediately after each meal he suffered with epigastric pain, from which he obtained relief by induced vomiting. He was repeatedly awakened at night by epigastric pain and always obtained relief by emptying his stomach. He had never been relieved by the use of food or soda. From 1914 to 1916 he lost about 35 pounds in weight, chiefly because of a voluntarily restricted diet of soft foods and liquids, and he became so weak that it was impossible for him to continue with his work. In 1917 a roentgenogram had been taken of the stomach, which revealed gastric ulcer with hourglass deformity. Since medical treatment did not produce improvement the patient was advised to have surgical treatment, but declined. Later, however, his symptoms became so much worse that he consented to operation. He stated that the surgeon was unable to do anything to correct the condition which was found in the stomach at the time, and that he was advised to "build up" before any further radical treatment be attempted. In 1918 another attempt at surgical treatment was made. At this time a gastric ulcer was found and gastro-enterostomy was performed. Immediately after the operation very troublesome diarrhea developed and the patient passed from four to six stools daily over a period of about two years. The epigastric pain had been relieved somewhat by the operation and he no longer vomited, but he suffered more or less constantly with abdominal cramps, and, because of the persistent diarrhea, became very weak. Under treatment the diarrhea gradually subsided, and from 1922 to 1928 the patient was in fair health and was able to follow his usual occupation. In 1928 he again began to have attacks of diarrhea, considerably more severe than those which had occurred previously. He passed about ten to fifteen loose stools a day, which frequently contained mucus and occasionally blood. He again restricted his diet, taking practically no fruits or vegetables, and very little milk. As a result of the dietary restriction and diarrhea he lost weight and strength rapidly. He noted particularly that his legs were weak and that he walked with considerable difficulty. In August, 1929, his left leg began to swell; the swelling quickly extended to the right leg and later involved the genitals and abdomen. During this period, he noted deepening color of the skin. His principal complaints on admission were of diarrhea, anorexia, and extreme weakness.

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The patient was seen to be very weak, dehydrated, and cachectic. There was pronounced pigmentation of the skin, most marked over the extremities and bony prominences. There was no sharp line of demarcation, such as is usually seen in pellagra, but the lesions were otherwise suggestive of it. A scaly, pigmented eruption was noted about the genitals. There was a good deal of edema of the lower extremities and back, and the abdomen was moderately distended with fluid (Fig. 1). The tongue was red, glazed, and somewhat atrophic. Only a few teeth remained and there was no adequate masticating surface in the mouth. The heart was slightly enlarged, but was otherwise normal. Examination of the lungs gave negative results, except for a few dry, bronchial rales. A small umbilical hernia and a large reducible right scrotal hernia were noted. Rectal examination revealed only marked local tenderness. The blood pressure in millimeters of mercury was 94 systolic and 56 diastolic.

Urinalysis repeatedly gave negative results. The concentration of hemoglobin was 28 per cent; erythrocytes numbered 1,300,000 and leukocytes 4,000 in each cubic millimeter of blood. The differential count gave normal values, and blood smears gave no evidence of pernicious anemia. Aspiration of gastric content after a test meal did not reveal free hydrochloric acid. The concentration of blood urea was 15 mg., of blood sugar 73 mg. and of blood chlorides 602 mg. in each 100 c.c. The carbon dioxide combining power of the plasma was 50 volumes per cent. The value for serum protein was 4.6 gm. in each 100 c.c., of which 47 per cent was albumin. There was a proportionate reduction in the serum calcium; the reading was 7.7 mg. in each 100 c.c. Roentgenograms of the thorax gave negative results. Roentgenograms of the long bones were negative for osteoporosis. Repeated examinations of the stools were negative for parasites, pus, or blood, and an abnormal content of fat was not demonstrable by the usual tests. The Wassermann reaction of the blood repeatedly was strongly positive. A tentative diagnosis of a malfunctioning gastro-enteric stoma, with a possible gastrocolic fistula, was made and emergency intravenous injection of fluids was instituted. Transfusion of 500 c.c. of blood also was given. As the patient revived under this treatment, certain additional features were noted. He was found to be in a state of mild delirium a good deal of the time, and was extremely uncoöperative. A neurologic consultant reported the presence of extensive peripheral neuritis, with absent reflexes and reduced sensation in the lower extremities. It became apparent that the patient was suffering not only from some grave disturbance in the digestive tract, but also from latent syphilis and from a deficiency syndrome characterized by pigmentation, residual glossitis, peripheral neuritis, mild dementia, and extensive general edema of the nutritional type.

Attempts at identification of the gastro-intestinal lesion were highly unsatisfactory because of the weakened condition of the patient and his mental disturbance. Fluoroscopic examination of the stomach was attempted and it was found that some barium was passing through the pylorus while a good deal passed through a large

gastro-enteric stoma into a greatly dilated jejunal loop. Because of the persistent diarrhea, repeated attempts at proctoscopic examination were made, but the patient resisted vigorously. Fluoroscopic examination of the colon seemed to be out of the question. Camphorated tincture of opium (paregoric), kaolin, a diet high in



Fig. 1. The patient shortly after admission. Pigmentation of the lower extremities, emaciation, ascites, and muscular atrophy are evident.

vitamins and dilute hydrochloric acid controlled the diarrhea somewhat, and at the end of three weeks in the hospital it was thought that the patient's condition was sufficiently good to attempt antisiphilic treatment. Although it was generally agreed beforehand that the syphilis probably had no bearing on the patient's general condition, it was thought that arsenic might have a beneficial effect on the pellagrous manifestations. The patient did not make a significant response to four doses of neo-arsphenamine, although there was a slight, nonspecific, tonic effect. The neuritis remained unchanged; the pigmentation of the skin, and the eruption on the genitals were not altered in any way, and the general anasarca persisted.

Attempts to treat the deficiency syndrome were almost as unsuccessful. During the whole period, while the patient was in the hospital, his average daily intake of food was extremely small and he could be induced to take only very limited amounts of concentrated foods. A variety of diets was tried, but the patient's anorexia and apathy toward food persisted. His mild delirium and his lack of coöperation effectively nullified any attempts at forced feeding. The patient's last two weeks in the hospital were characterized by exacerbation of diarrhea, increased severity of the mental symptoms, and general decline in strength. The blood pressure remained extremely low, ranging from 80 to 90 systolic; the edema and ascites decreased somewhat. Solutions of acacia, of glucose, and physiologic solution of sodium chloride, given intravenously, failed to have any supportive effect. A new complaint, that of photophobia and diplopia, presented itself; it appeared to be due to convergence insufficiency more than to palsy of any single muscle. As a last resort, and because of the possibility that a gastrocolic fistula was present, surgical intervention was considered, but because of the weakness of the patient this was deferred

indefinitely. At the end of seven weeks in the hospital, the patient died suddenly, and without any immediate prodromal symptoms. The suddenness of his death was similar to that which is so commonly reported in beriberi.

At necropsy, extreme emaciation, edema, and pigmen-

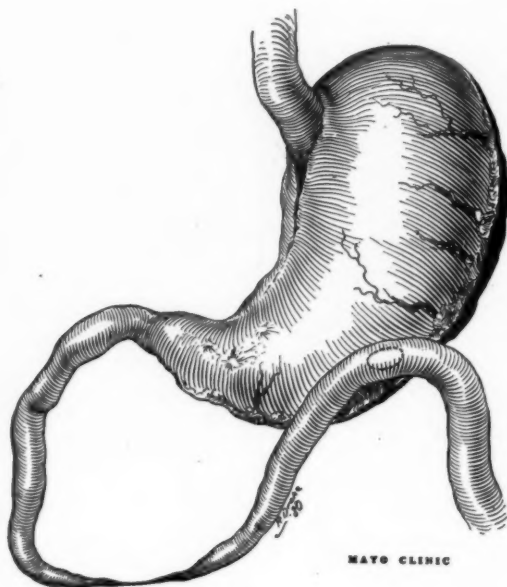


Fig. 2. The condition of the stomach and duodenum.

tation were striking. On opening the peritoneal cavity, the omentum was found to be adherent to the scars resulting from the previous laparotomy. The abdomen contained 1,000 c.c. of cloudy fluid, and its upper portion was a dense mass of adhesions. On opening the pleural cavities, each was found to contain about 500 c.c. of cloudy fluid. The pericardial sac contained 100 c.c. of clear, straw-colored fluid. There were healed lesions of tuberculosis in the lungs and the nodes of the hilum, and there were a few subpleural, petechial hemorrhages. There was also terminal bronchopneumonia. The liver was negative to examination, except for a small hemangioma. The gallbladder contained one stone and a moderate degree of cholecystitis was present. Examination of the spleen, pancreas, suprarenal glands, kidneys, bladder, testes, thyroid gland, and thymus was essentially negative. The most significant abnormalities were confined to the digestive tract. The esophagus was normal. The stomach was contracted, especially in the prepyloric region, and on the anterior surface a stoma made at gastro-enterostomy was present and was in good condition. The mucosa of the stomach was pale and rugæ were absent. At the angle of the stomach, on the lesser curvature, the mucosa was injected and irregular; a definite scar was not present. What appeared to be the scar of a previous ulcer was noted in the duodenum. On attempting to follow the

duodenum downward, occlusion was encountered about 4 cm. below the papilla of Vater (Fig. 2). At this point the lumen of the duodenum was obliterated and was replaced by a fibrous cord 4 mm. in diameter for an extent of 2.5 cm. Below this cord the lumen became normal in size, and 10 cm. farther on, in the jejunum, was the stoma of the gastro-enterostomy. The remainder of the small intestine was essentially normal. The colon, however, presented a picture of a diffuse, ulcerative type of colitis. There were many superficial ulcers with serpiginous borders, between which islands of edematous, whitish mucosa were seen. Sections of the colon revealed superficial ulceration, which in places extended to the muscularis mucosæ. These ulcers were covered with a fibrinopurulent exudate, which formed a pseudomembrane and extended over large areas of the surface (Fig. 3).

Because of the mental symptoms and the peripheral neuritis, a special examination of the brain and spinal cord was made. Both were normal in gross appearance, but on section definite evidences of pathologic change were encountered. In the brain, there was a section of the right superior frontal convolution which gave evidence of considerable myelin degeneration, not limited to the perivascular regions, but diffuse and extending into the radiating fibers in the cortex. A similar change, of lesser degree, was noted in the optic chiasm. The peripheral nerves, also, had undergone rather marked degenerative change, but evidence of a previous inflammatory process was not found. These degenerative processes were most marked in the nerve roots, between the spinal cord and the dorsal root ganglia. Evidences of degenerative change were also noted in the anterior roots. The left sciatic and left femoral nerves were the most involved, but all the nerves of the lower extremities had undergone definite changes. The spinal cord was not injured, except for a region of degenerative change in the posterior columns of the medulla oblongata and in certain regions of the posterior spinal cerebellar tract.

The final anatomic diagnosis was: (1) anterior gastro-enterostomy for duodenal and gastric ulcer, (2) duodenal occlusion, (3) ulcerative colitis, (4) terminal bronchopneumonia, and (5) degenerative changes of the central nervous system somewhat suggestive of those seen in beriberi.

COMMENT

The principal interest attached to this case lies in the unusual combination of symptoms of the so-called deficiency diseases. The glossitis, pigmentation, and mental disturbances suggested pellagra, whereas the peripheral neuritis, edema, ascites, and sudden death were more or less characteristic of the wet form of beriberi. The changes found at necropsy, particularly those noted in the central nervous system, were comparable to those reported in beriberi. The combination of evidences of various conditions in

this case appeared to be unique and were difficult of explanation.

Although opinion is not unanimous, pellagra and beriberi both have been thought to be due to deficiency of Vitamin B. There is a general be-

lieving that Vitamin B contains more than one active principle, and Goldberger has maintained that it contains a specific factor which prevents pellagra. The dry type of beriberi probably is due to Vitamin B deficiency alone, and it has been produced experimentally in animals. The wet type probably is due to a combination of deficiency in Vitamin B and low intake or reduced assimilation of protein with subsequent reduction of the serum proteins.² Because of the mental disturbances of the patient whose case has been presented, it was difficult to determine exactly in what respect his diet had been deficient, but it is fairly certain that during a large portion of his illness he had taken only concentrated and artificial foods. He had largely avoided fruit and vegetables and he had taken meats only in limited quantities. He had also suffered with vomiting and diarrhea to such an extent as to interfere with the assimilation of such foods as he actually had ingested. These latter factors may explain the low level of serum protein and the edema. The other deficiency symptoms were probably due to a combination of inadequate diet, vitamin deficiency and the disturbed physiologic mechanism of the gastro-intestinal tract.

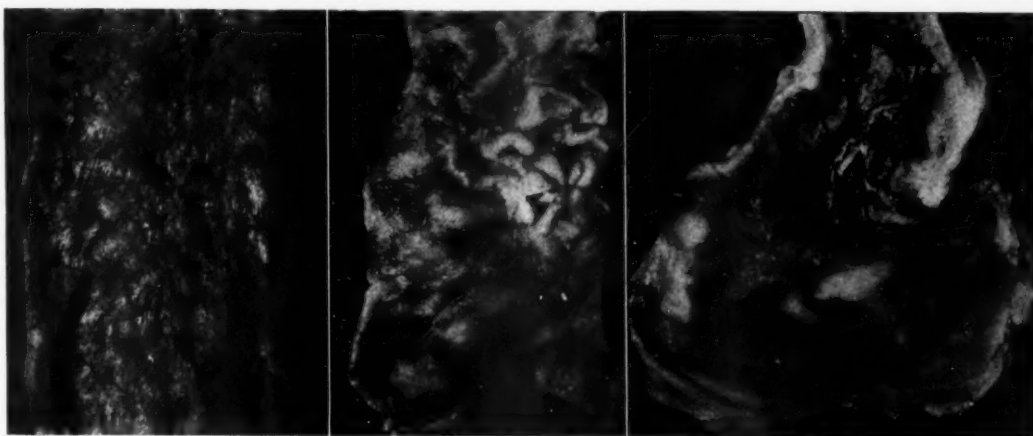


Fig. 3. Sections of the colon. There is evidence of ulcerative colitis and a pseudomembrane.

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The case may be said to present an end-picture of the effect of inadequate diet on a patient whose pancreatic ferments and bile were diverted into

mains a mystery. It may represent the result of operative trauma or the end-stage of an obliterative inflammatory process. Pathologic examination gave no further clues as to its nature. The ulcerative colitis, which played so large a part in the production of symptoms, had some of the appearance of a terminal condition. However, bacteriologic studies were not made and it was impossible to exclude the possibility that the patient had suffered with an infection by the diplococcus of ulcerative colitis. In this connection it must be recalled that in other deficiency diseases ulcerative lesions of the bowel have been described and that in pellagra supposedly specific types of colitis have been said to exist.

It is interesting to speculate as to the possible physiologic effect of duodenal occlusion below the papilla of Vater in the presence of gastroenterostomy. In normal animals which have been fed on laboratory food this does not produce very significant nutritional effects, although it has been known to cause jejunal ulcers.¹ In the presence of high gastric acidity such as this patient probably had in the early stage of his disease, it is possible that the pancreatic ferments were inactivated and that this was responsible for the original diarrhea.

The manner in which disturbances of gastrointestinal function act to produce deficiency

syndromes is, of course, not entirely understood. That such syndromes do occur is a well established fact. Eusterman and O'Leary recently reported a series of cases in which pellagra was secondary to obstructive gastro-intestinal lesions, or, as in one case, to ulcerative colitis. Symptoms not unlike those of beriberi have been encountered at the clinic, usually in cases of profound nutritional disturbances of long standing. Inanition edema likewise has been observed at the clinic⁷ and Landis, and Leopold, and Wolferth previously reported similar cases following gastro-intestinal disturbances. The connecting link in all of these groups of cases seems to be the combination of an inadequate diet, usually low in protein, with some gastro-intestinal lesion which interferes with the assimilation of food. What portions of these syndromes can be attributed to deficiency in Vitamin B alone is difficult to determine, but, as Minot has claimed, a multiplicity of factors may enter into the etiology of any deficiency disease of this type. It is apparent that a search for symptoms of deficiency disease should be made in any case in which, because of gastro-intestinal disease, the patient has subsisted on a restricted diet, since it is not unlikely that

many mild or borderline deficiency syndromes now escape attention.

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DEATH FROM EXPLOSION OF MIXTURE OF ANESTHETIC GASES

It has been two years since, at Evansville, Ind., a tank containing nitrous oxide exploded, killing an anesthetist. Last month a patient died on the operating table in Los Angeles because of the explosion of an anesthetic mixture. Yet the hazard from an explosion of anesthetics is probably less than that of fatally persistent hiccup. It has been pointed out that surgeons and anesthetists need far more to utilize means to prevent postoperative pneumonia than to worry over the hazards of explosions, except, of course, explosions due to carelessness. In the case of the Los Angeles accident, the patient was given nitrous oxide and oxygen, followed by ether. It has been pointed out repeatedly that a mixture of these gases is explosive. Explosions recorded heretofore appear to have been due to sparks from discharges of static electricity. Various committees of the American Medical Association have reported on precautions that are to be taken towards the prevention of such accidents. *Jour. A. M. A.*, February 14, 1931, p. 530.)

KOREMLU, A DANGEROUS DEPILOYATORY

There has been on the market for some time a depilatory sold under the name "Koremlu Cream," marketed first under the trade name "Kora M. Lublin," more recently under the style "Koremlu, Inc.," both of New York City. According to the advertising, Koremlu is "guaranteed to devitalize superfluous hair roots on face or any part of the body." From information received it was quite apparent that Koremlu contained thallium acetate. Reports of serious effects of the use of Koremlu Cream have been reported that are typical of thallium poisoning. The A. M. A. Chemical Laboratory analyzed the preparation and concluded that it consisted essentially of an ointment containing approximately 7 per cent thallium acetate and 9.5 per cent of zinc oxide. Dr. Sabourand, who studied the effects of thallium as a depilatory, declared that any ointment containing more than 1 per cent of thallium acetate is dangerous. He cautioned that but small amounts of the one-per-cent ointment should be used at one time; no limit is given to the amount of Koremlu, which is much stronger, that should be applied. (*Jour. A. M. A.*, February 21, 1931, p. 629.)

TWO CASES OF PELLAGRA FROM MINNESOTA
ONE WITH THE SYNDROME OF PROGRESSIVE MUSCULAR ATROPHY

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PELLAGRA was first recognized in the United States in 1902.¹ In 1914 it was estimated that there were 165,000 cases in the United States. The original pellagrous area comprised the South Atlantic states, but since its recognition, cases have been reported from practically every state in the Union. Many more cases may be recognized if it is borne in mind that any case of severe and obscure nutritional disturbance may be pellagra.

In Minnesota and the neighboring states, Head² reported one case from South Dakota, and O'Leary³ of the Mayo Clinic reported thirty-four cases seen in four years, coming from the middle western and northwestern states, including three from northwestern Canada. Granger⁴ in 1918 reported five cases, three of which developed in Minnesota and North Dakota. Sweitzer⁵ reported seven cases in chronic alcoholics in Minnesota. Briggs and Ruhberg⁶ reported two cases in alcoholics. Marsh,⁷ McIntosh and Blount,⁸ and Middleton,⁹ reported one case each from Wisconsin. Marsten and Warren¹⁰ noted four cases from Wisconsin, and Ely¹¹ recorded two cases from Iowa.

For a brief review of the etiology of pellagra, we have drawn largely upon Goldberger's excellent account¹² of the various theories concerning the origin of the disease.

Three to four centuries ago, pellagra was considered to be due to poor food. A later theory attributed the disease to the deficient and poor quality of protein in the diet of people eating corn. This idea was abandoned when pellagra was discovered in individuals whose diet contained no corn. For a long time the theory was accepted that pellagra was caused by toxic changes in the food, especially in corn, due to the action of microorganisms that were non-pathogenic to the individual, but produced a toxin. Following this, the students of the disease were divided into two groups, one of which

advocated the infectious and the other the dietary theory of the origin of the disease. The former group based their contention chiefly on the following grounds: (1) abrupt appearance and extension of the disease and its limitation to the south; (2) seasonal character; (3) occurrence in the well-to-do with liberal diet, and in well nourished individuals. The second group gave as reasons for supporting the dietary theory: (1) no contraction of the disease by attendants in hospitals; (2) response of patients to proper diet; (3) complete prevention by proper diet; (4) inability to transfer disease by inoculation of well persons with secretions of diseased individuals.

In 1912, Funk stated that it was a deficiency disease: an avitaminosis. He maintained that the milling process removed an essential vitamin from the corn. He was probably the first to recognize the true character of the disease, but his premise concerning the mechanism by which it was produced was not correct.

Since the dietary has succeeded the infectious theory, the recent researches of Goldberger, Wheeler, Lillie and Rogers¹³ have quite conclusively established the following facts: (1) that pellagra is due to deficiency of a vitamin called the P-P factor, which comes from the same sources as those associated with Vitamin B; (2) that this is not identical with the anti-neuritic factor of Vitamin B; (3) its chief food sources are yeast, fresh meat, butter, milk and vegetables; (4) it acts as a pellagra preventive and pellagra cure without the help of protein.

However, not all observers of this disease are ready to accept the above facts as final and for a controversial opinion the reader is referred to the discussion of Wilson.¹⁴ Wilson does not accept the results of the animal experiments of Goldberger and his associates as far as considering "black tongue" in dogs and the dermatitis of rats brought about by a deficiency of the P-P factor in the experimental diets as being pel-

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lagra. He believes that the essential cause of pellagra is a primary or secondary deficiency in the value of the protein intake relative to individual requirement, a requirement which may be raised by various conditions. He does not consider a deficiency of the vitamin factor in itself as ever being sufficient to produce the disease.

The following cases were first seen by one of us (H. H. J.) in a single locality in Minnesota:

Case 1.—The patient was a housewife, aged 34, who complained of generalized body pain, loss of strength and inability to move about, and swelling of the face.

Her family history was essentially negative.

The patient's appendix and an ovarian tumor were removed in 1917. In 1918 she had severe influenza and suffered from palpitation and tachycardia for the next two years. In 1919 her tonsils were removed. In March, 1927, seven teeth were extracted.

The patient was married for twelve years. Her husband was living and well and she had two children, eleven and seven years of age. One miscarriage occurred in 1918.

The present illness started in February, 1927, and was gradual in onset. The patient first noticed redness and burning of her face, and, a little later, puffiness of the face, particularly under the eyelids. Her face was swollen at the time of examination in June, although not so much as formerly, and the dermatitis was more pronounced. In March she had experienced difficulty in using her left arm and shoulder. Shortly thereafter the same difficulty appeared in the right arm. This later extended to the hands, particularly the left. In April she developed weakness in the right thigh, a little later in the left, and then in the legs. Numbness in the dorsum of the left foot was felt at different times. For two months she had increasing difficulty in swallowing, with regurgitation of liquid food. Her neck was very weak and she was unable to lift her head from the pillow. She had a rather severe, non-productive cough for two weeks. At the onset of the illness she felt hungry all of the time, but later her appetite was only fair. Since 1918 she had had attacks of epigastric pain, with diarrhea. After the onset of the present illness her bowels moved two to four times a day. She could not sleep well because of pain in the legs and nervousness.

Physical examinations showed the patient to be moderately undernourished with hard edema or swelling of the forehead, eyelids, malar regions, upper lip and ears. The swelling was greater on the right side, producing asymmetry of the face. The skin over the swollen part was rough, dry, scaly and dark from increased pigmentation. Dermatitis was present over the neck and anterior upper aspects of the thorax. In the latter location there was no pigmentation and the color of the skin was dark red. The distribution was bilateral and symmetrical, producing a "butterfly wing" appearance. The same dermatitis was present on the dorsal aspects of the fingers, hands, wrists and lower third of the forearms. Here the symmetrical distribution was

even more striking than on the thorax, one side being a perfect mirror pattern of the other.

There was reddening (stomatitis) of the mucous membranes of the mouth and tongue. The muscles of the tongue showed atrophy and there was inhibition of movement of the muscles of the soft palate. Several teeth had been extracted and the remaining teeth were in good condition. The tonsils were well removed. There was a systolic murmur at the apex. Moderate fixation and pain occurred on flexion of the joints. There was general tenderness of the skeletal muscles and long bones on pressure. The temperature was 98.6, pulse 96, blood pressure 108/50. Since the patient could not stand on the scales, her height and weight were not obtained. Otherwise, the physical examination was negative.

The blood examination showed the following: hemoglobin 67; RBC 4,280,000; WBC 4,900. Differential blood count showed leukocytes 24.5; mononuclears 4; polymorphonuclears 71; eosinophiles 0; basophiles .5.

The patient was admitted to Abbott Hospital for further study. A neurological examination was made on admission by Dr. Angus W. Morrison. The face was asymmetrical, due to unequal edema. There was no apparent involvement of the seventh nerve. There was some atrophy of the muscles of the tongue, as the mucous membrane of the sides was thrown into folds. The movements of the tongue were weak. Effort produced only a very slight elevation of the palate. There was distinct atrophy of the thenar and especially hypothenar groups of muscles on both sides, but it was much more marked on the left. There was a more definite hollowing of the first interosseous space, especially on the left side, and of the other interosseous spaces than is usual. All motions could be performed, but there was marked weakness in gripping, abduction and adduction of the fingers and particularly in approximating the thumb to the little finger, more marked on the left than on the right side. There was loss of tone of all muscles of the extremities, with atrophy of flexor groups in the forearms. Movements of the elbows and shoulders could be carried out, but were weak, and there was some limitation in action, due to what appeared to be shortness in the biceps tendon and limitation in adduction of the shoulder joint, particularly on the left side. There was no marked atrophy of supra- and infra-spinatus muscles. The neck muscles were extremely weak, the head falling in one direction or another. All movements of the lower extremities were weak and there was some atrophy of external peroneal groups. All movements could be performed. The biceps and triceps were barely present and equal. Knee jerks were not obtained. The left ankle jerk was greater than the right. Abdominal reflexes were all present, but the right tired more easily than the left. Both lowers disappeared on repeated tests. Sensory examination was negative. Deep sensibility and joint sensation were normal. The tentative diagnosis was progressive muscular atrophy with bulbar palsy. On June 12, 1927, the patient was seen by a consultant in dermatology, Dr. H. E. Michelson. In his diagnosis he considered the following possibilities: (1) pellagra;

(2) disseminated lupus erythematosus; (3) edematous stage of scleroderma. Absence of temperature and acute onset completely ruled out disseminated lupus erythematosus. The edematous stage of scleroderma was rejected because of the color of the involved area and the non-resistant character of the edema. The dermatitis, stomatitis, apathetic state and intestinal symptoms all pointed to pellagra.

On June 7, the urine reaction was alkaline, with specific gravity 1.019, no albumin or sugar, sediment, 10-15 pus cells per H. P. F. and no casts.

One June 9, the sugar tolerance with 100 G. glucose was fasting sugar 100 mg. per 100 c.c. the first hour and 134 mg. per 100 c.c. the second. An X-ray examination of the long bones and joints showed decalcification. There was no evidence of arthritis. The changes were apparently due to disuse atrophy.

An examination of the stool on June 10 showed it to have an offensive odor with alkaline reaction, undigested food, and no ova or parasites.

On June 11 the blood examination showed WBC 7,100, with a differential count of 25 leukocytes, 685 polymorphonuclears, 7 mononuclears, no eosinophiles and 0.5 basophiles.

The patient remained in the hospital one week. She was placed on a high protein diet with an abundance of green and cooked vegetables. Her afternoon temperature varied between 99.2 and 99.8, and her pulse rate from 100 to 104.

Several months later she entered a sanitarium, where she died on November 11, 1927, about six months after she first came under our observation.

Autopsy by Dr. E. T. Bell was limited to abdominal incision. The body weight was estimated at 99 pounds. There was brownish pigmentation of the face and neck, with a triangular area down on the thorax. There was no pigmentation of the arms or legs. The organs of the chest and abdomen were essentially normal, except for terminal bronchopneumonia of the right lung. His diagnosis was: (1) pellagra; clinical; (2) terminal broncho-pneumonia.

Because of the advanced muscular atrophy and the helplessness of the patient, the first clinical impression did not particularly suggest pellagra, but the stomatitis, gastro-intestinal symptoms, symmetrical dermatitis and central nervous system degeneration could be explained only on this basis. We had come to this conclusion, independently, although at the time we were not familiar with such marked central nervous system degeneration occurring in the course of pellagra. We have not found this feature of progressive muscular atrophy with pellagra reported in the literature. Spastic paraplegia, ataxia and marked muscular weakness have been described.

Wood¹⁴ states that one of his fatal cases presented a classical picture of acute Landry's paralysis and cites Kinnear Wilson as mentioning

neurological findings in pellagra having a marked resemblance to subacute combined degeneration. Wood also states that in some cases the neurological aspect is typical of subacute combined degeneration. He further cites Neusser as describing a case of amyotrophic lateral sclerosis occurring with pellagra and the inference that it was of pellagrous origin, "but such would hardly be accepted without more evidence."

Roberts¹⁵ points out that spinal cord lesions fall into three groups: (1) probable pyramidal tract degeneration. He quotes other students of the disease as stating that muscular atrophy of some degree occurs in approximately 50 to 60 per cent of the cases. This involves extensor more than flexor groups, often producing contractures.

The case of Middleton⁹ had fibrillary tremors and speech and deglutition difficulty, suggesting anterior horn and bulbar involvement.

Aside from this, Cuno¹⁶ reports the case of two brothers, fourteen and twelve and a half years of age, in whom progressive muscular atrophy was present. Both showed marked improvement and one almost complete rehabilitation after being fed yeast, codliver oil and a vitamin-rich diet. He regarded a possible avitaminosis as the cause of the nervous lesions.

In investigating more closely the dietary habits of the patient above reported, it was found that during the year prior to the onset of the disease the patient had lived on a farm in South Dakota; there had been a complete crop and garden failure, and the patient's diet had consisted largely of potatoes, bread, eggs, and pork with only a little milk and very few vegetables.

Case 2.—This patient was a farmer, sixty-two years of age.

Since 1916 he had had three attacks of manic-depressive psychosis. The last one was in 1923 and was the most marked, lasting for about six months.

The patient was admitted to Abbott Hospital September 15, 1928, complaining of weakness, diarrhea, loss of weight, anorexia and insomnia. His brother-in-law stated that the patient had not been feeling well since April of that year. About the first of July he developed loss of appetite, sleeplessness and restlessness. He began to show definite evidence of a psychosis and mental depression. About one week later he developed diarrhea, which was present to some extent in the community. Vomiting began about the first of September and the patient took nothing to eat except a little orange juice until he entered the hospital. The vomitus was green at first, and later brown and foul smelling. The patient stated that his stools had been

dark and tarry and that he had lost about twenty-five pounds.

Physical examination showed the patient to be greatly emaciated and dehydrated, and somewhat confused and disoriented. There was hyperemia of the hard and soft palate. The tongue was smooth and red, with ridging at the center and lateral furrowing. The pharynx was reddened and adhering to it was a stringy, white exudate, similar to an exudate appearing on the palate.

The lungs were hyperresonant, with dry râles under each clavicle and sibilant râles at both bases in the mid-axillary line. The heart tones were poor, with some irregularity in rhythm. The abdomen was scaphoid and tender. No mass was felt and there were no enlarged lymph glands or rectal shelf.

There was a brown, spotted pigmentation, similar to freckling, on the dorsum of both forearms, extending to the elbow. On the back of both hands there was an irregular area about 10x10 cm. which was smooth and pink and seemed to be due to peeling of the brown skin. The distribution and shape on the hands was symmetrical. There was pigmentation encircling the neck, similar to that on the forearms. The skin of the nose was rough, pigmented and slightly red at the tip. The skin over the elbows and knees was also rough and pigmented.

A Van Slyke test on the day of admission registered 48 per cent, and a non-protein-nitrogen test 54.5 per cent.

During the first thirty-six hours after admission the patient was given 4,000 c.c. of 5 per cent glucose and the vomiting stopped. A tentative diagnosis of pellagra was made on admission, and as soon as the vomiting had stopped, raw beef juice, yeast and orange juice were given.

On September 17, a gastro-intestinal examination showed no free hydrochloric acid in the stomach contents. On fluoroscopic examination the pyloric end of the stomach did not fill. Six hours later the same findings were present and the cardiac end of the stomach was still filled. There appeared to be a trickle of barium to the pylorus.

The patient took food well for two days, then he resumed vomiting and his mental condition became so much worse that it was impossible to feed him. On each succeeding day he showed more exhaustion and on the eighth day he developed a pulmonary edema and died.

An autopsy was performed by Dr. J. S. Harter of the Department of Pathology, University of Minnesota. The essential findings were as follows: Pigmentation was present as described above. The right pleural cavity contained 200 c.c. of straw-colored fluid and the pericardial sac contained 250 c.c. The lower lobes of both lungs were edematous and congested on section. The stomach and gastro-intestinal tract were normal except for three diverticula in the upper portion of the jejunum. The pathological diagnosis was pellagra.

When this patient was first seen by one of us (H. H. J.), he was thought to be suffering from

a carcinoma of the stomach. On admission to the hospital the two patches of dermatitis were noticed on the back of the hands. On inquiry, it was learned that this dermatitis had recurred for three previous summers. This established the photo-sensitive character of the condition and suggested the possibility of pellagra. The gastro-intestinal and X-ray findings appeared to confirm the diagnosis of a co-existing carcinoma of the stomach. Opposed to the latter diagnosis were the absence of pain and the fact that no palpable tumor could be felt in the abdomen, where it should be almost visible. Because of the patient's weakened physical condition, the fluoroscopic examination was difficult and unsatisfactory. Plates were not made. In view of the post-mortem findings, it must be concluded that the lack of filling of the distal half of the stomach was due to pressure of the spine.

The dietary habits of this patient were excellent and he was not an alcoholic. He must be considered as one of the rather infrequent cases of pellagra designated as the idiopathic type, whose eating habits show no evidence of gross dietary deficiency. His last attack of manic-depressive psychosis with anorexia and diminished food intake was no doubt a precipitating factor in bringing on the terminal stage of the disease, although it was not entirely responsible, since his history reveals the fact that the cutaneous manifestation was present for at least three years before the terminal illness.

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ROOMS OF RAMSEY

A ride in a swift green elevator brought the Hennepin County visitor to the top floor of the new Lowry Medical Arts Building in Saint Paul, where the Ramsey County Society held open house in their new rooms February 27, 1931. Creamy plaster walls and walnut woodwork give a sense of restful dignity. A delightful antique table in the periodical room is surrounded by chairs covered with woven straps of pigskin. Cretonne window drapes, gay but not too gay, and a perfectly luscious armchair conspire effectively to make the reader feel at home. Soft oriental rugs seem to be everywhere. The walnut Windsor chairs in the main reading room are of the heaviest construction so that even the most corpulent of the local profession can sit in one for hours at a time without fear of collapse. The library stacks are arranged on two floors, and there are study cubicles under the windows with walls so high that full privacy is assured the occupant unless he stands up and cranes his neck out.

The auditorium has rough, creamy plaster walls with pilasters of ivory, and rich blue-green window draperies. The lighting fixtures, specially designed, are modernistic in effect, but cunningly escape boldness. The softly frosted glass eliminates glare without casting shadows and gives a sense of friendly brightness to the room. Handsome display cases are built into the wall of the corridor and of the auditorium for the collection of old books and instruments which has been arranged chiefly by Dr. John Armstrong. One case contains a remarkable array of nursing bottles, loaned by Dr. Robert Rosenthal, including a pottery one from Rome, antique china, glass and silver ones from Europe and Colonial America. Of interest is a flat silver nipple which can be plugged into any cork. Thus any bottle can be gotten up to tempt the infant appetite, but scarcely to deceive it. Old books, rare books, were in every case. Especially noteworthy was a collection of book treasures on ophthalmological subjects loaned by Dr. Frank E. Burch.

Dr. O. W. Holcomb, the newly elected president, sat at the table on the platform, flanked by Drs. Justus Ohage, Wm. Davis, H. Longstreet Taylor, Jennette McLaren and J. C. Markoe, early members of the Ramsey County Society. Dr. John Armstrong sketched

the beginnings of the Society and called attention to the bronze name plates of the founders which had been placed in the entrance lobby. The meeting place of the first eight members in 1870, in a small dark room over a beer saloon, was contrasted with the present quarters, and the important steps taken by the Society in the intervening years were traced. Dr. H. Longstreet Taylor outlined the beginnings of the library when the members of the committee spent Saturday afternoons collecting books and periodicals from the homes of the local doctors, aided and abetted by the good housekeepers who presided there. A week-end horse and buggy trip to the southern part of the state yielded a valuable collection of library material, although it and the committee members were nearly lost in the mud and rain of the unfenced roads between the infrequent farm houses on the night trip homeward. The late Dr. Edouard Boeckmann, whose method of making catgut, bequeathed to the Society, has so generously provided for its financial needs, was cited for his loyalty, enthusiasm and vision which, manifested throughout his lifetime, still continues to influence the progress of the Society. Dr. John Armstrong and Dr. Frank Burch were characterized as the latter-day saints of the library because of their devotion to its development.

The guest speaker of the evening, Dr. Alfred Brown, Omaha, associate professor of surgery, University of Nebraska, delivered a fluent and scholarly address on the development of surgery after the crusades, emphasizing particularly the influence of the medicine which had been brought to Europe from the Orient, and its spread from the center at Salerno.

The attractive buffet supper which was served in the auditorium at the close of the meeting emphasized the feeling of hospitality and friendliness which was evident throughout the evening. Ramsey County Society seemed to say, "This is our medical home, and we are glad to have you enjoy it with us."

O. S. H.

Who would exchange walnut woodwork with "creamy plaster" (and frosted glass) for the oak tables, sawdust, and stench of lager of olden days?—Ed.

(*Bull. Hennepin County Medical Society*, Mar. 10, 1931.)

COSAS MEDICAS FILIPINAS (Philippine Medical Affairs)

RALPH T. EDWARDS, M.D.
Elysian, Minnesota

IN the Philippine Islands, situated in the oriental tropics, most oriental and tropical diseases prevail. However, there are two notable exceptions. Yellow fever has never been found, though the specific mosquito carrier abounds. Infection from South and Central America has been escaped probably because of the long time required for sailing ships to span the Pacific over the ordinary trade routes. In modern times quarantine regulations prove an effective barrier. Nor have there been any cases of human trypanosomiasis or true sleeping sickness, but this is more easily explained as the insect carrier, the tsetse fly, does not exist in the Philippines. However, surra (enzootic trypanosomiasis) is common, though it has not been known to attack man.

It is not uncommon to wade through a foot of water to reach the Manila streetcars, such rains assisting greatly in the sanitation of ground high enough for drainage, but much of the six foot annual rainfall comes in daily showers through the wet season, just enough to keep the lowlands wet and steamy, an ideal incubation for filth diseases.

As here, so there, in the dry season dust-borne diseases prevail. The great amount of sunshine and the beautifully ventilated houses cut down the rate for tuberculosis, pneumonia, scarlet fever and diphtheria, though smallpox is especially severe.

Most of the country is low enough to have a tropical climate, but to the north of Manila is Baguio, the health capital of the Islands, which, on account of its altitude, is almost temperate in climate.

As in the southern part of this country, and in most of the Orient, so in the Philippines, agriculture plays an important part in health conditions. Rice is the chief cereal food. In fact, no other cereal could be raised in sufficient amount to take its place. Rice is planted, and for weeks grows in standing water, with accompanying mosquito and malaria breeding. One may stand on a hillside and see both sides of the valley terraced into little level fields with rice growing

in standing water, then turn and see Manila cut up by canals and the river, a beautiful sight. However, were it not for the fact that everyone sleeps under a mosquito net, the malaria deaths would be appalling. One must acquire considerable skill to get into bed without allowing mosquitos to enter the canopy at the same time. I have seen as many as 275 mosquitos on one side of the canopy waiting for a victim. In addition to serving as breeding places for mosquitos these rice fields also harbor the hosts of at least two kinds of flukes.

Carabaos, Hindu humped cattle, and native cattle stand surra or enzootic trypanosomiasis very well, but do not give much milk. Western cattle are very susceptible, thus making dairying hazardous and fresh milk so dear that few natives can afford it. The milk of the water buffalo is used to some extent by the natives for infant feeding, but is so scant and highly concentrated as to be of little help. These primary supplies are supplemented by many brands of condensed and some of sterilized milk, most of it coming from Holland. Nevertheless, the native family, living on from fifty cents to one dollar per day, and improvident in the extreme, often suffer from vitamin insufficiency, and the baby, least able to tell its troubles, suffers first.

Beri-beri, a B avitaminosis, was formerly rampant and half the babies died the first year. Science has not only proved, by much experimental and clinical evidence, that beri-beri is an avitaminosis, but now has a definite specific cure in tique-tique (tiki-tiki), an extract of rice husk, now manufactured extensively in Manila for the prevention and cure of this plague of the Orient (Fig. 1).

Sunshine, with abundance of fruits and vegetables, acts as a preventative of rickets, so that in a recent year, among over 35,000 admissions to the Philippine General Hospital, there was not a single case of rickets and but few of scurvy, mostly from the shipping trade, but there were ninety-nine admissions for beri-beri.

At the time of the American occupation, the native city of Manila was in a swamp, especially

during the rainy season, though the walled city was dry, as were also some of the suburbs.

The accompanying cut of a typical native outhouse (Fig. 2) shows how, in the wet season,

surfacing. Philippine rock being soft, this surfacing soon becomes mud, is scraped off and used to fill low places in the city while trainload after trainload of crushed rock is added to the streets.

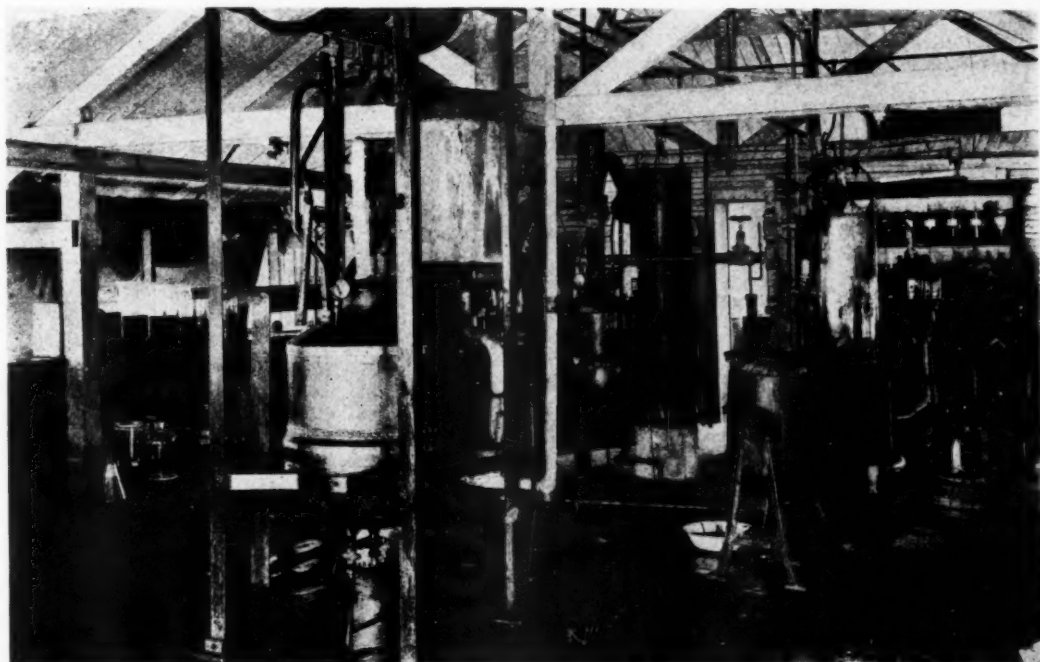


Fig. 1. Tikitiki-extraction plant, Manila.

any food-borne pestilence would spread. For the same reason tinea soleum thrive whether the season were wet or dry, as pigs had free access to the droppings and were not at all backward about answering the call to lunch. Under American rule this has been done away with in Manila, and will, in time, be changed throughout the Islands, though under Spanish rule "It is the custom" made it perfectly right.

During the rainy season mosquitos are a veritable plague, with accompanying malaria, dengue or break-bone fever, and other mosquito-borne diseases, yet the native took no precautions except that the whole family slept under a common mosquito net, putting it away in the morning to make room for the daytime use of the house.

To raise Manila out of the mud is no small task, but it is being done. There is a saying that "The Constitution follows the Flag," but perhaps we had better say that good roads follow, because travel and commerce must have roads. The streets were filled with rock, with a crushed rock



Fig. 2. Typical outhouse.

Sea commerce, like that on land, also demands better facilities. Formerly ocean-going ships were compelled to stop out in the bay and transship their cargoes to cascoes or barges of light draft which could go up the river to the customs house. A great sea wall was built a mile or so out in

the bay with a gap for a harbor entrance. A square mile of the bay next to the city was enclosed in a wall, and the centrifugal dredge "Manila" filled that square mile with mud from

As there are some fifty or more dialects spoken in the Islands, and as education had up to the time of occupation been only in reach of the "classes," America began the task of educating

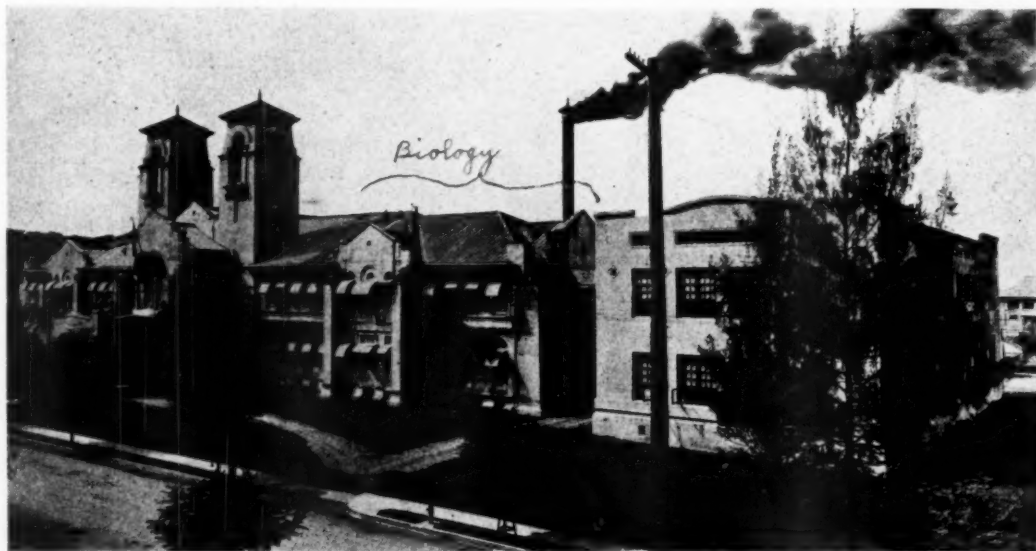


Fig. 3. Main building and east wing, Bureau of Science, Manila.

the harbor, and now passengers walk directly onto the decks of ocean-going steamers. Even this did not make enough harbor, so another 160 acres was walled and filled with harbor dredgings and possibly more fills will follow. On the first square mile are government buildings fitting for the chief seaport of the Islands; on the second fill are various semi-public enterprises: the Manila Hotel, the Elks Club, the Army and Navy Club, the University Club, etc., so that, instead of approaching low dingy mud flats, one now meets "modern Manila."

Low spots in the city were too far away to be filled from the bay, so, when these harbor fills were completed, the dredge improved the river and threw the dredgings into the moat about the Spanish walled city and into other low districts near the river. Then much of these dredgings was hauled to low places too far for the dredge to throw and through the middle of this filled district runs Taft Avenue, flanked by the Y. M. C. A., the Columbia Club, the University of the Philippines, the Philippines General Hospital, and the Bureau of Science, signs of a modern healthful city, and Manila is coming up out of the mud.

the "masses." Spanish was the official language of the country, but spoken only by those who could afford school. Schools were established wherever possible with American teachers, teaching only in English, to make a common language. In a few years young Filipinos began teaching under American supervision and more schools were established. Now elementary grammar and high schools lead to normal school or college and the University according to the aspiration of the student. In 1927 there were over a million enrolled in the elementary schools and over 6,000 in the University. This does not equal the present showing in Minnesota, but it is not probable that many states in the Union have made a better showing even thirty years after admission to statehood. Educationally also it is evident that Manila is coming up out of the mud, with higher intelligence making for better health.

In addition to these external means of improving the city's health, there are two bands of men in charge of making the city, and in fact the whole insular group, healthful.

The Bureau of Health works much as a state

board of health, their work modified by peculiarities of place and people.

The Biological Department of the Bureau of Science consisted, in 1906, of eight Americans

vaccinations were reported than there were people in the municipality. After this the Bureau of Health again sent its own men to do the vaccinating, and the death rate for smallpox again



Fig. 4. The horse stables at Alabang.



Fig. 5. The main laboratory building at Alabang.

and ten or twelve Filipinos whose duty it was to study plants, animals and men, dead or alive, with the aim of advancing the science of health, more especially of man, but also of plants and animals. Figure 3 shows the main building of the Bureau of Science, much as it is today, where the medical staff worked, and many earnest hours of work were put in on health problems in that quarter of the old building.

Formerly, a large building at the back of this housed the experimental animals, from white mice and guinea pigs to horses and cattle, with an occasional python and cobra, but now there is a large plant at Alabang, a suburb of Manila, where much of the serum work is done. (Fig. 4.)

Dr. Victor G. Heiser, for many years Director of Health in the Philippine Islands, stated, in 1922, that before American occupation the annual death toll from smallpox in the provinces immediately around Manila alone was 40,000, and in Manila, 6,000. Now it is not uncommon to go a year without a smallpox death in Manila. The extreme heat makes the keeping of smallpox vaccine without ice a matter of but a few days or weeks at best. Therefore compulsory vaccination is difficult, except near Manila. About 1920 there was a campaign to abolish compulsory vaccination in the provinces on the ground of its being a failure, but investigation showed that the vaccine sent municipal officers was thrown unused into the waste basket, and more successful

dropped; seven to twelve deaths per year being considered about normal for the provinces.

Although there is little diphtheria in the Philippines, an adequate supply of antitoxin is made by the Bureau of Science.

Other curative sera are made and kept for local needs, thousands of doses of Shiga dysentery serum being used each year.

No consideration of the medical situation would be complete without a word about leprosy, since about two out of each thousand are lepers.

Twenty to twenty-five years ago, at the beginning of effective segregation of lepers, 200 to 300 examinations were made annually by the Bureau of Science, but this work has been so increased that, in 1926, there were 6,394 in segregation. This of course does not include many of the very early cases, because leprosy is generally concealed as long as possible, though in late years more and more early cases apply for treatment.

Formerly leprosy was a hopeless disease, but in 1929, 553 cases were released on parole as arrested or cured, making a total released since 1922 of 2,013.

One-third of the appropriation for health service is allotted to segregation and treatment of leprosy. In addition there is the Leonard Wood Memorial, \$342,500, allotted to three stations. John D. Rockefeller, Jr., has given \$100,000 and the Eversley Childs gift is said to be the largest of all, but how large I have not been able to learn. The campaign began with a segregation station at Manila called San Lazaro, to be fol-

lowed by the leper colony on the Island of Couillon, where 6,000 lepers are accommodated. Now the plan is to have stations in the various provinces much as we do our tuberculosis sana-

For many years Santo Tomas University and Hospital had been graduating a few poorly trained men who practiced in and about Manila. Under American tutelage, laws have been passed

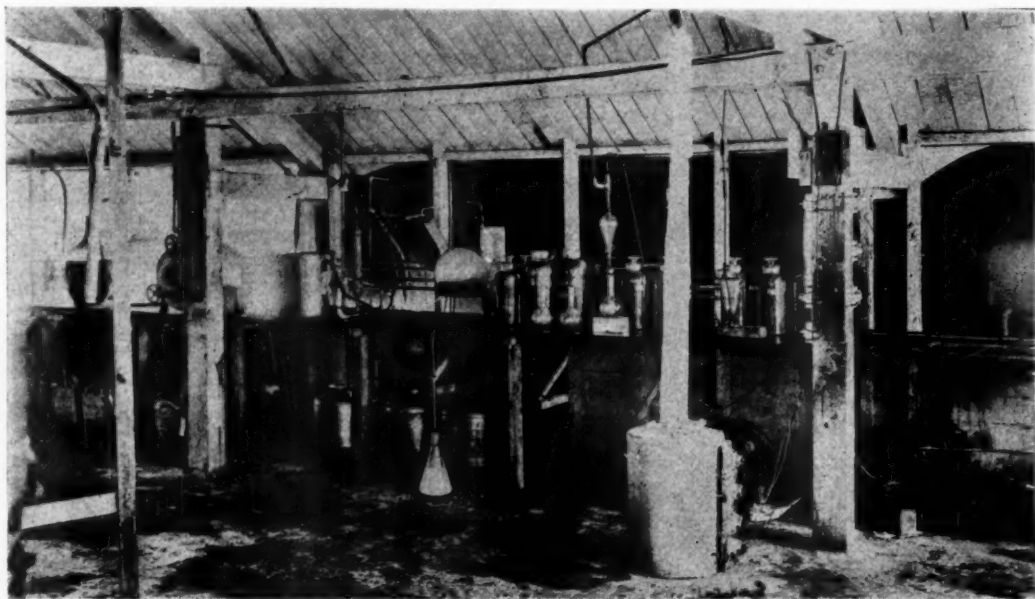


Fig. 6. Plant for making ethyl ester of chaulmoogra oil, Manila.

toria. Figure 6 shows a plant for making ethyl ester of chaulmoogra oil, Manila.

The arrested or cured lepers are becoming more and more of a problem in themselves, since the Filipinos are becoming leprosy-conscious, and most of the parolled cases return to Couillon, the leper colony, outcasts unable to return to their former places in society, or even to make a living away from the colony. So there is a need for the establishment of a colony for parolled cases. A certain number do relapse and must return to the treatment stations for more care.

Yaws, a disease somewhat resembling syphilis and like syphilis cured by intramuscular or intravenous arsenic, is fairly common.

Elephantiasis is hard to eradicate, because the filaria larva appears in the general circulation chiefly during the night, the regular feeding time of the carrier mosquito.

Madura foot, superficially resembling elephantiasis, but caused by a mycetozoa and akin to actinomycosis or lumpy jaw of cattle, is also hard to eradicate because of the barefoot habit of the common people.

making medical practice requirements of a very high order. In 1906 the medical department of the University of the Philippines was established, with men from the Bureau of Science and other men from the best American medical schools composing the faculty. Now both the faculty and the staff of the Bureau of Science are almost entirely Filipino, graduated from their own national school.

When America began the task of making Manila and the whole archipelago a more healthful place, military hospitals and military officers were utilized to enforce regulations. Later the Civil Hospital for government employees was established in a big rambling house, with two American physicians and a few American nurses in charge. Then the General Hospital was established under American management. Now there are over 90 registered hospitals in various parts of the archipelago with a capacity of over 8,000 beds.

We must not forget that, while this progress has been made, there are thousands of square miles where as yet no civilized man has set foot,

with which no news is interchanged with the rest of the world.

A very marked improvement in health has been accomplished during the thirty years of American occupation, but any marked further advance must accompany improvement in economic conditions. There are now several thousand people for each registered physician, but any further supply must be native, for a foreigner will make more money elsewhere. It is almost axiomatic that a house visit should cost somewhere near the daily wage of a laborer. Twenty years ago the daily wage of a laborer in Manila was fifty cents or less, and native physicians were charging the price of two days' work or one dollar per visit, which naturally put the service of even the native physician out of the reach of the laborer. Present wages and fees I do not know, but I am sure that with the inadequate supply the laborer and others of the lower classes receive but little attention. A few American and other foreign physicians still remain to minister to the foreign population and the more well-to-do, but the majority of the natives must depend on the present inadequate supply, which, keeping pace with the advancement of the economic state, will possibly be adequate in another fifty years.

In 1906-1907 a special effort was made to improve the health of the prison population, isolating communicable diseases and, so far as possible, ridding all the inmates of parasites. At

the beginning of the effort the city death rate and that of the prison was the same in spite of the crowded condition of the prison—forty-seven per thousand. After a year of effort the prison rate was cut to seventeen per thousand, showing some of the possibilities for improvement in tropical death rates.

At the time of American occupation, the infant death rate was 500 in Manila, where the people were most under the influence of western medicine, and the rate in the provinces was not known. Now, by education and sanitary laws the rate has been cut to 240. The rate is still too high but cannot be greatly improved till economic conditions permit better care of mothers and babies.

At first the general death rate was 150, rising in epidemic times even up to 300. After thirty years of education and effort it has been reduced to about twenty-seven, while at the same time the rate among the American residents is but nine. This comparison is not entirely accurate, for none in poor health is likely to seek residence in the tropics, and many who find themselves in serious ill-health return to America.

It will be seen that educationally as well as physically Manila is coming up out of the mud. With the accompanying improvement in the islands economically, hygienic conditions will also improve.

Acknowledgment is made to the Bureau of Science for the illustrations accompanying this article, which have been reproduced from various Bureau Reports.

CASE REPORTS

CARCINOMA OF THE PANCREAS WITH ESOPHAGEAL OBSTRUCTION FROM METASTASIS TO THE LYMPH NODES OF THE MEDIASTINUM*

REPORT OF CASE

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and

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Obstruction to the passage of food through the esophagus is almost always the result of an intra-esophageal lesion. The elasticity and mobility of the esophagus is so great that lateral displacement of the organ does not interfere with swallowing and it is seldom that a tumor of any type will completely surround the tube and produce obstruction to the passage of food. The following case is presented because of the rarity of esophageal obstruction from extra-esophageal lesions.

REPORT OF CASE

A woman, aged fifty-nine years, was admitted to the clinic April 17, 1930. For six months prior to admission she had suffered from indefinite dyspepsia, with gas on the stomach, associated with much upper abdominal fullness. A dull, epigastric pain then gradually developed; it came on irregularly after eating, and lasted an hour or two, regardless of measures used for relief. In the four weeks immediately before the patient came to the clinic, she had had a constant feeling of nausea and epigastric fullness, but no vomiting. Weakness had been rapidly progressive and she had lost about 15 pounds in weight.

On examination, the patient was found to be very weak and undernourished. There was moderate rigidity of the muscles over the epigastrium, but a tumor could not be palpated. The concentration of hemoglobin was 62 per cent; erythrocytes numbered 4,400,000 and leukocytes 9,300 in each cubic millimeter of blood. The urine was normal. Analysis of gastric content revealed free hydrochloric acid to be 26 and total acidity 38. Material obtained by lavage of the stomach measured 350 c.c. and contained particles of food eaten the night before. Roentgenologic studies of the gastro-intestinal tract revealed obstruction of the duodenum about 10 cm. distal to the pylorus.

Abdominal exploration was performed by Judd, April 18, 1930. The pancreas was found to be very hard throughout. There seemed to be ulceration of the duodenum and proximal to this region of ulceration

the duodenum was tremendously dilated. At operation, it could not be decided whether the condition was one of carcinoma of the pancreas or whether a large inflammatory duodenal ulcer, with secondary pancreatic



Fig. 1. Metastatic involvement of mediastinal lymph nodes, with consequent almost complete occlusion of the esophagus.

tis, was present. As the chief symptom to be relieved was the duodenal obstruction, posterior gastro-entrostomy was performed. There was no evidence of obstruction of the bile ducts.

Convalescence was uneventful until about the seventeenth day after operation, when jaundice developed. The following day, the concentration of serum bilirubin was found to be 6.0 gm. in each 100 c.c. of blood and the van den Bergh reaction was direct. The jaundice progressed rapidly and obstruction to the flow of bile became complete. About this time, examination of material which drained from the duodenum failed to reveal bile. Operation was advised but the patient refused. Weakness progressed, the jaundice deepened, and finally, after twenty-seven days of complete biliary obstruction, she consented to another exploration.

June 2, 1930, Judd performed cholecystgastrostomy for obstructive jaundice due to obstruction of the common bile duct by tumor of the head of the pancreas. Immediately after the operation the jaundice became less marked, and by the tenth day had disappeared. However, the patient's strength gradually failed, and

*Submitted for publication August 1, 1930.

she died nineteen days after the second operation, from weakness and inanition. A week or more before her death she complained of difficulty in swallowing, and also of difficulty in vomiting. The general condition of the patient did not permit antemortem investigation of the esophagus.

Necropsy revealed an extensive malignant growth of the pancreas, with extension to the wall of the duodenum, producing duodenal obstruction, and also occluding the lower end of the common bile duct. There was extensive metastasis to the mediastinal lymph nodes, two of which almost completely occluded the esophagus (Fig. 1). There was extensive metastasis to both lungs.

IMPALEMENT OF THE RECTUM

REPORT OF CASE

HAROLD E. HULLSIEK, M.D., F.A.C.S.*
Saint Paul

Impalement wounds of the rectum are among the most serious of the accidents of civil life. They are most frequently met with in agricultural districts, where they occur usually as a result of individuals sliding or jumping from hay-mows or wagons and becoming impaled upon pitch-forks, hoes, or similar implements. Males make up the majority of the victims. In Heath's series of eighty-three cases, seventy were males. In forty-six instances the smooth handles of pitchforks, hoes, brooms, etc., were responsible for one-half.

Anatomic configuration influences the course of the foreign body, and the weight of the person together with the height from which he falls are also important factors. The converging aspect of the buttocks deflects the impaling object toward the ischio-rectal space, while the bony framework guides it thereafter. The object may pass through the anal orifice without injury to it, it may perforate the perineum, or it may penetrate the tissues lateral to the anus. Once inside, it is not uncommon for it to become impacted against the sacrum, either the sacral promontory or the foramina, or it may travel on upward. The rectum is the most frequently involved organ, and next in order is an accompanying wound of the bladder. Septic peritonitis resulting from perforation of the abdominal cavity is a frequent and to-be-dreaded complication.

It is remarkable to note what appalling injuries of this type may occur and still be followed by recovery. Woodbury reports the case of a girl of eighteen years of age, who fell eight feet onto a stake three inches in diameter, which passed twenty-seven inches and emerged at the left side of the breast, fracturing three ribs on the way. The girl was back in school in six weeks. It is interesting to speculate as to the course of the perforating body in this case.

On the other hand Heath's patient fell only four inches onto the handle of a hammer and died in a few hours. At autopsy a fragment of trousers was

found in the abdominal cavity together with small masses of feces.

In Van Hook's series the mortality was 35.5 per cent, but of the thirty cases having extra-peritoneal injuries only, all recovered. Those having peritoneal involvement had a mortality of 71.4 per cent.

Careful cleansing, removal of any foreign material, together with provision for drainage constitutes the treatment in those cases where one can be reasonably certain that there has been no injury to the peritoneum. In those in which such an injury has occurred, immediate laparotomy is essential.

The case I wish to report is that of a young man of thirty years, employed by a packing company. He was first seen on May 30, 1930, with a history of having two weeks previously slipped and fallen over backwards onto an iron rod which extended upward from a small platform on the floor. The impaling object was apparently about one-half or three-quarters of an inch in diameter. At the time he felt an intense pain about the anus but could discover no wound. After resting for an hour or two he returned to his work. The day following he was fairly comfortable and continued to work. Four days later he again began to have pain about the rectum, and six days after the accident something "broke" and discharged near the anal opening, with a relief of the pain.

Examination showed the opening of a sinus in the skin three-quarters of an inch from the anus in the mid-line posteriorly. A probe passed into the tract proved it to extend for one and a half inches towards the coccyx and slightly to the left. No connection with the rectum could be determined either by means of the probe or by a roentgenogram of the barium-filled tract.

The question at issue was whether the accident bore any relation to the existing sinus, and was a matter of liability. It was felt that this could not be definitely settled, but in any event the treatment of the sinus was surgical.

At operation the tract was carefully explored under sacral anesthesia. As the probe had indicated, it extended upward for about an inch and a half to a point anterior to the sacro-coccygeal joint. At the bottom of the tract a small fragment of cloth was discovered. This measured one-half an inch in diameter, and was of khaki material. No connection with the rectum could be found. The tract was laid open and packed, after which prompt and uneventful healing took place.

Reconstructing the injury and its complications was not difficult in the light of the operative findings. The rod had apparently passed through the anal orifice, with no injury to it, and had then passed upward, perforating the wall of the rectum and coming to rest against the sacrum. As it forced its way through, it carried with a fragment of the man's trousers, which was in all likelihood punched out by the action of the end of the rod against the sacrum. When the rod was withdrawn, the small piece of cloth was left remaining in the wound. The wound in the rectal wall had apparently healed quite promptly, leaving a closed space in which the foreign body lay. After an interval of

*From the Miller Clinic.

three or four days sufficient suppuration occurred to cause a rupture of the abscess and a discharge of pus to the outside. The discovery of the cloth in the sinus naturally proved conclusively the relation of the sinus to the original impalement.

Hamm Building.

FREE JOINT BODIES

REPORT OF TWO UNUSUAL CASES

WALLACE H. COLE, M.D.
Saint Paul

One hesitates to add to the already voluminous literature on free joint bodies but the two cases to be reported seem to be so unusual that some available record should be made of them.

The first patient was a middle aged farmer who was seen the day after he had been injured in an automobile accident out in the country. He received first aid for a large laceration over his left eye and for an injury to his right elbow, the elbow being placed in a right-angle splint. This splint was still in place when the patient was first examined in the office. There was no history of any previous disability to the elbow joint, although the patient could remember several times when he had received severe contusions without any disability following. Without removing the splint a radiograph was taken which showed a transverse fracture of the olecranon with what was apparently a foreign body lying between the fragments, but after removal of the splint examination showed no break in the skin of the elbow and a new film demonstrated a free body (Fig. 1). Operation was performed that afternoon and a typical "joint mouse" was found lying between the fragments as shown in the radiograph. The free body was flattened and disc-shaped, measuring about 1.3 centimeters by .6 of a centimeter (Fig. 2). Its surface was slightly lobulated and smooth in the way characteristic of free bodies which have been in joints for some time but there was a small tag of soft

tissue attached near one end. Upon cutting the body in two it was found to be very hard but not bony in density. The cut surface seemed to be calcareous and was definitely laminated but no area of true bone was observed (Fig. 3). The tissue was very easily decalcified and microscopic sections showed a cartilaginous mass with areas of calcification. The cartilage was alive and apparently growing (Fig. 4). Recovery from the fracture was uneventful.

Free bodies in the elbow are not uncommon, that joint coming next to the knee in the frequency of this lesion, but on account of its structure the symptom of "catching" or "locking" seen so typically in the knee is frequently lacking. A body can, therefore, be present in an elbow for many years without causing symptoms. The origin of the body under discussion is problematical but the lack of bone seems to rule out the so-called osteochondritis dissecans. Probably either a small flake of articular cartilage had been separated off in the past and had become attached to the synovial membrane near the olecranon fossa, or the fragment started as a small cartilaginous growth from the synovial membrane itself. This had gradually enlarged, receiving its nourishment by means of its attachment as well as from the synovial fluid. At what time the body became free is, of course, problematical but the ragged tag on the "mouse" might indicate that it had been torn loose from its synovial attachment only at the time of the accident. Being free and lying posteriorly in the joint it naturally fell between the fragments of the fracture.

The second patient was a man sixty years of age who, for about two years, had had some indefinite trouble with the right knee which was never severe enough to keep him from work. About a month before he was seen he had a sudden attack of pain in the knee which had caused definite disability since. There was no locking at any time, however, but pain was always present on use of the leg, being centered about the mesial side of the joint. This pain was always relieved by rest.

Examination showed a man with rather marked bow



Fig. 1. Lateral radiograph of elbow showing fracture of olecranon process with a free body lying between fragments.



Fig. 2. "Joint mouse" removed from between fragments of fractured olecranon.



Fig. 3. "Joint mouse" shown in Figures 1 and 2 cut across to show gross appearance. Note laminated structure.

legs but with no definite findings in the knee joints. The region of the mesial collateral ligament of the right knee was indicated as the area where discomfort was felt but no tenderness was present here, although pain

condition is undoubtedly rare many minutes of anxious searching may be saved if its possibility is kept in mind. The origin of the free body in question is problematical as no source was found, but the bone in the



Fig. 4. Photomicrograph of free joint body shown in Figures 1 to 3 showing growing cartilage and areas of calcification.

was referred to that point on forcing hyperextension of the joint and attempting to increase the varus. Radiograph disclosed a shadow of a free body lying anteriorly and slightly laterally in this joint (Figs. 5 and 6). Although the symptoms had not been in any way typical or even suggestive of a free body it was felt that its presence was the underlying factor in the disability and that there was no question but that it should be removed. On account of its position as shown in the radiograph, that is, very close to the tibia and anteriorly in the joint, a diagnosis of free body under the lateral semilunar cartilage was made, as this condition had recently been reported. At operation the lateral cartilage was exposed and, although a hook was passed beneath its free margin, the body could not be located. Feeling sure of the diagnosis, however, the cartilage was freed from its attachment to the tibia for about 1.5 centimeter, and on lifting it up the body was seen lying loose beneath it.

No source of the body was found at operation, all joint surfaces seen being smooth and normal in appearance. The fragment (Fig. 7) was a typical flattened joint body measuring about 1.4 centimeter by 1.1 centimeter and on section showed no lamination but a bony center with proliferation of cartilage around it (Fig. 8).

Geist has reported two cases of free bodies beneath the lateral cartilage and if it had not been for the knowledge of these the search for such a body as now reported might have been unsuccessful. Although the

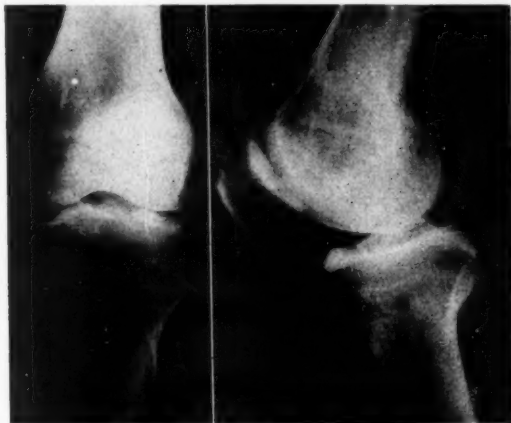


Fig. 5 (Left). Antero-posterior radiograph of knee showing free body lying close to tibia in lateral side of joint. This body is beneath the lateral meniscus.

Fig. 6 (Right). Lateral radiograph of knee shown in Figure 5.

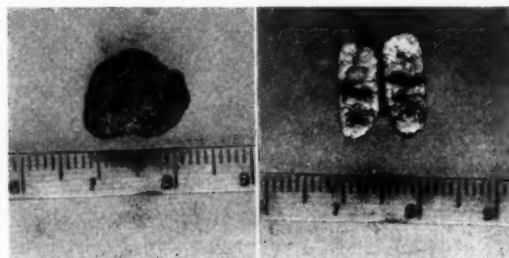


Fig. 7 (Left). Free joint body removed from beneath the lateral meniscus of the knee.

Fig. 8 (Right). Section of body shown in Figure 7, showing thickness and structure.

center shows the origin might have been from some small fragment broken or separated off in the past from one of the articular surfaces. During the two years of indefinite discomfort in the knee, the body having lodged beneath the lateral meniscus was gradually growing until finally it reached such a size that by some movement or change in position it caused a catch without locking, and a definite disability on weight bearing.

PRESIDENT'S LETTER

ONE day last month St. Paul and Minneapolis physicians were invited by the Community Chest organizations of the two cities to listen to luncheon speeches on the subject of the Cost of Medical Care.

The speakers in each case were lay public health workers in the employ of the Committee on the Cost of Medical Care. Their remarks were confined to already published studies of the committee.

But it occurred to me to wonder just how it has come about that lay social groups are inviting the medical profession to listen to figures on the cost of medical care.

Why wasn't it the county medical society or the state association that was sponsoring these public luncheons on the subjects relating to medical care?

How did this busy and diversified Community Chest group come to be sufficiently interested in the subject to bring in a speaker at their own expense to tell us about it?

There is unusual interest in medical matters everywhere these days. Pick up any of the first class magazines and you will find at least one, and maybe more articles about the medical profession or about medical costs and the distribution of medical care.

This is obviously the doctor's problem as much as it is anybody's. The doctor has something of value to offer to any discussion of the subject because he alone is dealing intimately with both patients and doctors. But curiously enough these exhaustive medical articles are seldom written by medical men.

The inequality in distribution of medical care is bound up, to a considerable extent, with an economic situation that is beyond the immediate adjustment of either doctor or social worker. But certainly it is the physician's business to be as well informed and as actively interested as the social worker in economic readjustments of the care of the sick. County medical societies ought to be at work on it. Auxiliaries ought to be interested, medical journals ought to be studying it. Physicians ought to be at least as well qualified and as ready to talk about the situation as lay observers.

The fact is that we have now in America a new professional group. The social worker group with its specialized training and its diversified interests that are as wide as all society. These new professional men and women are professionally interested in poverty and sickness. It is only another step—and a step which they make with enthusiasm—to interesting themselves in the medical profession and its problems.

The Committee on the Cost of Medical Care is one practical result of this intelligent, active interest. American Medical Association representatives are participating to some extent in the studies made by the committee. Unfortunately they did not initiate it nor were they party to its organization. The committee has been making exhaustive studies into its subject, supported by lay foundation funds. It will be ready in another year to draw conclusions from the mass of data and to make recommendations. What those recommendations will be, physicians can only guess.

Is the medical profession informing itself, also?

Will it be ready as an interested party to accept or reject these recommendations intelligently?

In this letter I want to urge every county medical society in Minnesota to make a serious, unprejudiced study of the problem of the costs of medical care—if it is a problem—and do it NOW.

The problem of distribution of medical care and costs, which includes, of course, hospital care, nursing, drugs as well as doctors' fees, is one of our problems—the problem of the Minnesota State Medical Association and each of its component societies and its auxiliary organizations, quite as much as of any social service group, however active or inclusive its interest.

It would be a pity, indeed, if the great profession of medicine were ever to be caught in the unfortunate position of giving a reluctant, forced submission to outside reorganization of its own domain—all because it was too short sighted or too busy, or too indifferent to inform itself in time.



President
Minnesota State Medical Association.

EDITORIAL

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THE STATE MEETING

An afternoon of clinics, led by the best medical talent available in the University of Minnesota medical teaching staff and elsewhere, is announced as the major feature of the seventy-eighth annual meeting of the Minnesota State Medical Association, to be held in Minneapolis, Minnesota, with headquarters at the Nicollet Hotel, on May 5 and 6, 1931.

This interesting departure from ordinary program composition is to occupy the entire Tuesday afternoon session of the meeting. A total of thirty-two clinics will be held in four amphitheaters of the University Hospital and Medical

School, which are to be turned over to the State meeting for the occasion.

The remainder of the two-day scientific program will be divided into three main divisions, all to take place at the Nicollet Hotel.

Surgery and obstetrics will occupy the Tuesday morning session. Wednesday morning will be devoted to a Symposium on Diagnosis, and Wednesday afternoon to a Symposium on Therapy similar to the successful symposium that concluded the Duluth program last year.

Among the distinguished visitors who will be present for the meeting are: Dr. George Ward Gray, Jr., Professor of Obstetrics and Gynecology at Cornell University, New York, who will speak as George Chase Christian Memorial lecturer on "Carcinoma of the Uterus" Tuesday morning, and Dr. Drew William Luten, Assistant Professor of Clinical Medicine at Washington University, St. Louis, Mo., who will talk Wednesday morning on "Diseases of the Heart with Special Reference to the General Practitioner."

An important series of clinical demonstrations and exhibits, all of them intimately related to the scientific program, will be on view at the hotel. Among these will be the University of Minnesota, the Mayo Clinic and the State Department of Health exhibits, a tuberculosis demonstration and the display of Brush bacteriological specimens.

The Southern Minnesota Medical Society will again present a gold medal for the best individual contribution to these exhibits, following a precedent set last year.

The Women's Auxiliary of the Minnesota State Medical Association, which holds its annual meeting at the same time, will join with the Medical Association for the annual banquet of the two organizations to be held at the Nicollet Hotel on Tuesday night.

The House of Delegates will meet on Monday night, May 4, at 7:00 P. M. at the Nicollet Hotel. The following are members of the Reference Committee: Dr. J. R. Manley, Duluth; Dr. W. C. Carroll, St. Paul; Dr. H. M. Blegen, Warren;

Dr. C. P. Robbins, Winona; Dr. C. B. Wright, Minneapolis.

The scientific program of the seventy-eighth annual meeting appears in this issue of the JOURNAL. Members are urged to make their plans at an early date so as to be able to attend this meeting.

THE TUBERCULOSIS CAMPAIGN

The annual Early Diagnosis of Tuberculosis campaign, conducted by the Minnesota Public Health Association and its affiliated national body, the National Tuberculosis Association, will focus its attention particularly this year on the period of adolescence.

Special studies made generally over the United States indicate that an alarmingly high percentage of children of the 'teen ages, compared with other age groups, are breaking down with tuberculosis. That this is the weak spot in our defense armor against tuberculosis has long been obvious to the doctor. Any authoritative public education campaign which calls emphatic attention to the dangers surrounding this age and the absolute necessity for early discovery of possible tuberculosis infection has the doctor's sympathy and coöperation.

Tuberculosis in early adulthood undoubtedly has its usual origin in a childhood infection with the disease and too often in an unsuspected long continued contact with open tuberculosis. Early detection of this infection and protection against such contacts, so far as widespread public education can bring about these highly desirable results, are the objectives of this campaign. It has the hearty endorsement of the Minnesota State Medical Association and will, incidentally, enlist the services as speakers of many association members in the course of the campaign.

DR. BIRNBERG'S MOVIE FILMS OF RUSSIA AND HIS COMMENTS*

Strange reports and conflicting conclusions have come from post-war Russian visitors. Most of us have heard lectures by educators, ministers or writers, portraying their travel stories and impressions. It is a pleasure to accord to one of our own members credit for his

incomparable industry—in three weeks he covered the area from the Baltic to the Black Sea. For an amateur photographer he showed unusual adeptness—he brought back views of everything from "droschkas" to churches, temples, marriage ceremonies and nude bathing! What his discerning medical eyes singled out his camera brings to his spoken words the most convincing confirmation. When he remarks that the people evidence no unusual undernutrition but plenty of evidence of primitive dress and living he can prove it with his engaging films. He shows the actual cues of people waiting in line with their food cards, which we have heard so much about. At a time of unusual unemployment with us, when various methods are being devised to enable people to eat, it is interesting to note that in Russia the only way one can get a food card is to be gainfully employed or too sick or too old to work! Indeed, everybody works, "including father." Men and women work together, whether it be in digging sewers or in staffing hospitals, with no distinction whatever as to pay but considerable as to diet, since those doing the heavier, manual type of work are given the more invigorating rations. He carefully points out that these restrictions are not on a basis of "class," but according to category—A, B and C—and the doctors, on a basis of mental work, are in Class "C"! In a country which has set itself to abolish all notions of class distinction, he comments that the dining car service he saw on the way to the Crimea defied description, that the cars were divided into the types "hard" and "soft"!

Russia, so violently disturbed, offers a most unusual array of paradoxes; with all their turmoil they are by far the most hopeful present-day Occidental nation. They have so much individual autonomy and yet such extremes of police interference; "a people who use us (perhaps the most capitalistic of all countries) as their example, though they aim by the most violent and extensive of propaganda to destroy the world's principle of individual ownership and to establish Communism."

Dr. Birnberg has brought us some intimate glimpses of the changes that have befallen our medical brethren in Russia. A high grade of medical training and system of apprenticeship has been worked out, all at public expense. A most unusual redistribution of doctors has been worked out, and the younger men are sent to the rural districts. Those who succeed or show re-

*A recent address by Dr. Tobias L. Birnberg, St. Paul, with personally taken movie films on the occasion of a visit into Russia in the summer of 1930, and given in the University Extension Course for doctors at Duluth, Feb. 23, 1931.

search capacity are singled out and helped. The inference is given that those particularly gifted may choose their own types of work and places of abode. With the criticism that is leveled more or less persistently at our general plans and methods of developing specialism, it is interesting that they insist upon three full years of preparation and "a period of four months spent in special research and study every third year." Very large groups of individuals, as well as diseases, may be studied, not only from the disease standpoint but from the economic and social side as well. Their attitude toward the problem of prostitution—with an effort at social and economic adjustment rather than reform—is strikingly suggestive. Apparently Russian medicine has already greatly influenced much of continental Europe. "The whole situation is the most amazing human experiment ever contemplated." Thus, we can see that no matter what happens to Russia in the future the world is never going to be quite the same because of what has already occurred.

This whole wretched problem is so engaging, so much mooted, and so unutterably complex, that we should all be most thankful to Dr. Birnberg for his zeal in accumulating his evidence, and his gifted and spirited, as well as unbiased, attitude, in relating his impressions. The address should be heard by all our doctors as well as their families and friends. The suggestion might be passed to the program committee of our State society, so that at our next meeting the data here most inadequately touched upon might be given, provided the good Doctor will consent to do so.

E. L. T.

TOBACCO

On the basis of one national principle that if there is something people like to do there must be some reason why they should not do it, scientific investigators might be expected to have found some reason unqualifiedly to condemn the use of tobacco. On the basis of another national principle that anything advertised with enough millions must be of virtue, it might be expected that these same investigators would have found that abstinence from tobacco is the hidden cause of lack of charm or of virility. But scientific investigators are free of fixed ideas, as long as they remain scientific.

The day may come when it will be a mark of individuality to amble a nonchalant mile for one of a coughless consignment of cigarettes and then secretly to toast it over one's bootleg fire, but that day is not yet. Nor has the time come to educate the young mother that an infusion of tobacco must be mixed with the baby's food for the vitamins therein contained. Consequently, the perennial question of the harmfulness of nicotine, "pyridine and other pyrogenous compounds, carbon monoxide, traces of hydrocyanic acid, phenols and aldehydes" continues to bloom with the violets, and in between. And it should, for the problem needs solution.

The effects, not of nicotine only, but of the several chemical substances just mentioned, alone or together, must be considered when tobacco is smoked. Also, where it is grown, how it is cured, whether it is moist or dry, how fast it is smoked, how slowly, how it is wrapped, or what kind of a pipe is used, enter into the question. Moreover, the smoke may be inhaled or puffed, and tobacco may not be smoked at all. Tobacco may be, at least it used to be, chewed, whether or not circumstances would allow of expectoration. Doubtless all physicians can remember certain hirsute males who boasted that they ate theirs. As the biometrician might say, several variables seem to be involved.

Since these variables are not likely to be brought into correlation by the advertising writers and the physicians who help them with their copy, let us see what opinions a few of the serious seekers have evolved. In 1927 a small volume, written by Schrumpf-Pierron was published under the auspices of the Committee to Study the Tobacco Problem. The bibliography contained 750 names, more or less. Schrumpf-Pierron's conclusions were, in part, as follows: The study of the action of tobacco on the organism is still incomplete, both scientifically and clinically; sound individuals and unsound individuals react differently; immoderate doses cause disturbances that are first functional, then organic, and some of them are grave; disturbances have increased in frequency as the consumption of tobacco, particularly of cigarettes, has increased; the cigarette habit leads readily to abuse; further studies are needed, particularly "statistical research as to the influence of tobacco as ordinarily used among large groups of people as compared to the effect of abstinence among similar groups."

That does not give much of a chance for either the reformers or the copy writers to attack the subject from the health angle. The investigation, however, is being carried on.

W. E. Dixon, pharmacologist at Cambridge University, has studied the subject of the tobacco habit. He concluded his Norman Kerr lecture with the statement that smoking "leads to digestive and circulatory disturbances." He gave expression to an impression of clinicians that many years of continuous absorption of nicotine is responsible for some cardio-vascular conditions of middle life and old age. However, he continued, "It may well be that living in a civilization such as ours, under the conditions of strain imposed by residence in cities, the ordinary man shows in his nervous responses variations from the normal, and on such tobacco exerts a beneficial function."

Rolleston has in a sense carried on the work of Schrumph-Pierron by collecting from the literature the views of thirty-four writers on the effects of tobacco. He did not come to conclusions. Who could?

It is not easy to see how a study could be prosecuted more scientifically than that of Diehl, of the University of Minnesota. He had a group of 445 smokers and one of 441 non-smokers. The work was analyzed by biometric methods. However, as Diehl pointed out, the subjects were too young to have suffered from degenerative changes, if tobacco is responsible for any. He found that the smokers had less stable cardiovascular systems than non-smokers. However, he was careful to state that "the effect of such a difference on health or longevity never has been determined." The final rating of the two groups for classification for physical activities were not significantly different.

Another relevant piece of work done in Minnesota is concerned with the old question of tobacco and thrombo-angiitis obliterans. Barker studied the consumption of tobacco by 350 patients between the ages of twenty-five and fifty-five years, who had thrombo-angiitis obliterans and who had been seen in The Mayo Clinic in the last ten years. He compared with this group another that corresponded with the first in every way except that the members of it did not give evidence of peripheral vascular disease. He found reason to believe that tobacco is not the primary cause of thrombo-angiitis obliterans, but

that it may be a predisposing cause. Moreover, if patients with thrombo-angiitis obliterans have used tobacco excessively, the condition seems likely to run a more malignant course. Barker expressed the belief that evidence favors prohibition of the use of tobacco to patients with thrombo-angiitis obliterans, but, he added, "the data are by no means conclusive."

W. J. Mayo, who never has used tobacco, in discussing Barker's report, gave the present status of the tobacco problem as well as it can be stated: "I have no evidence to show that a moderate use of tobacco is harmful to the average person, but we know that even what might be called moderate smoking is harmful to some persons. On the whole, smoking seems a habit which has possibilities for harm, and has little to its credit, although many seem to derive a good deal of comfort from it, especially those persons who have nothing to do at the time which interests them more. Pipe smoking should be the least harmful, because the pipe is usually out, and the smoker is just as happy until he notices the fact, which depends largely on how much interested he is in what he is doing. The pipe seems to be the adult pacifier which takes the smoker back to his childhood days.

"Some smokers, especially of strong cigars, have functional heart trouble, and it now appears that the cigarette smoker is subject to various ills. I doubt that much harm results to the person who smokes a cigarette only occasionally."

From all that has been done thus far, it seems that "T. M." means both "'tis mince" and "'tain't mince." The Governor of North Carolina and the Governor of South Carolina each must have been an excellent judge of good liquor. One said there was iron in the whisky; the other said, leather. When the barrel had been drained, they found in the bottom a loose tack, just under the head of which was a leather gasket. Yet it is not recorded that either governor died of hepatic cirrhosis. Nor is the opposite on record, for the story is fictitious.

We need the facts about cirrhosis. We also need them about the effect of tobacco. All encouragement to those who are seeking them, and caution to those who are inclined to jump to conclusions.

R. M. HEWITT, M.D.

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Ampules old Sodium Thiosulphate-Abbott, 0.01 Gm.

ARLINGTON CHEMICAL CO.

Grass Mixture No. 1 Pollen Extract-Arlco (Timothy, June Grass, Orchard Grass, Red Top, in equal parts); Grass Mixture No. 2 Pollen Extract-Arlco (Timothy 40 per cent, Orchard Grass, Red Top, and Sweet Vernal Grass, each 15 per cent); Grass Mixture No. 3 Pollen Extract-Arlco (Bermuda Grass and Johnson Grass in equal parts); Ragweed Dwarf and Giant Mixture Pollen Extract-Arlco (equal parts of each); Birch Mixture Pollen Extract-Arlco (White Birch, Black Birch, Yellow Birch in equal parts); Maple Mixture Pollen Extract-Arlco (Red Maple, Ash-leaved Maple, Norway Maple, Sugar Maple in equal parts); Oak Mixture Pollen Extract-Arlco (White Oak, Red Oak, Black Oak, Swamp Oak in equal parts)

FAIRCHILD BROS. & FOSTER

Liver Extract-Fairchild

ELI LILLY & Co.

Tablets Amytal, $\frac{3}{4}$ grain

H. A. METZ LABORATORIES

Sulpharsphenamine-Metz, 0.75 Gm. Ampules
Sulpharsphenamine-Metz, 0.9 Gm. Ampules
Sulpharsphenamine-Metz, 3.0 Gm. Ampules

G. D. SEARLE & Co.

Procaine Borate-Searle

Ampules Procaine Borate and Epinephrin 1 c.c.

HEALTH PRODUCTS CORPORATION

Marine Liver Extract (White)

SCHERING CORPORATION

Iopax

The following articles have been exempted and included with the List of Exempted Medicinal Articles (New and Non-official Remedies, 1930, p. 477):

CHAS. PFIZER & Co.

Cinchophen-Pfizer

G. D. SEARLE & Co.

Ampules Sodium Thiosulphate (Searle) 5 c.c. +
Ampules Sodium Thiosulphate (Searle) 10 c.c. +

TRUTH ABOUT MEDICINES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Non-official Remedies:

Procaine Borate.—A borate formed by the interaction of *p*-aminobenzoyl-diethylaminoethanol (procaine base) and boric acid. It contains 58.1 per cent of *p*-aminobenzoyl-diethylaminoethanol. Procaine borate closely resembles procaine hydrochloride in its actions and uses. When injected subcutaneously, procaine borate exerts a prompt and powerful anesthetic action. It is non-irritant. Its action is enhanced by the addition of a small amount of epinephrine, as in the case of procaine hydrochloride.

Procaine Borate-Searle.—A brand of procaine borate-N.N.R. It is also supplied in the form of ampules procaine borate and epinephrine 1 c.c., containing procaine borate-Searle 0.0216 Gm. and epinephrine 0.00017 Gm. in 1 c.c. G. D. Searle & Co., Chicago.

Liver Extract-Fairchild.—A complete concentrate of an aqueous extraction of fresh edible liver, freed of connective tissue, lipid, and heat-coagulable protein. It is marketed in vials, each containing the material derived from 100 Gm. of fresh liver. Liver extract-Fairchild is used in the treatment of pernicious anemia. Fairchild Bros. & Foster, New York. (Jour. A. M. A., February 14, 1931, p. 529.)

Marine Liver Extract-White.—A liver extract representing the water-soluble fraction obtained from the livers of fish of the *Gadus* family in a glycerol-water solution. 100 c.c. represents fresh liver, 3,027 Gm. (1 fluidounce represents 2 pounds avoirdupois). Controlled clinical observations show that in pernicious anemia rapid improvement may be expected following the administration of marine liver extract-White. Health Products Corporation, Newark, N. J.

Pollen Extracts-Arlco.—The following pollen extracts-Arlco (New and Non-official Remedies, 1930, p. 29) have been accepted: Grass Mixture No. 1 Pollen Extract-Arlco; Grass Mixture No. 2 Pollen Extract-Arlco; Grass Mixture No. 3 Pollen Extract-Arlco; Ragweed Dwarf and Giant Mixture Pollen Extract-Arlco; Ragweed Mixture Plus Burweed Marsh Elder Pollen Extract-Arlco; Spiny Amaranth Pollen Extract-Arlco; Western Water Hemp Pollen Extract-Arlco. Arlington Chemical Co., Yonkers, N. Y. (Jour. A. M. A., February 21, 1931, p. 613.)

ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following has been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of Accepted Devices for Physical Therapy:

National Vaporizer.—This apparatus is designed for the purpose of vaporizing oil or aqueous solutions and atomizing very fine impalpable powders. The apparatus contains no metal valves or parts that may oxidize or stick together. It is so constructed that it enables almost the entire solution to be vaporized. The apparatus is relatively fragile. National Drug Co., Philadelphia. (Jour. A. M. A., January 24, 1931, p. 271.)

❧ A PAGE FORUM OF THE COMMITTEE ON PUBLIC HEALTH EDUCATION ❧

Advertising and the Doctor

"Although the great American god 'Advertisia' apparently controls most of our activities and our interests, it has not thus far succeeded in gaining a complete overlordship in the field of medicine. True, the use of the health claim for the advertising of antiseptics, tooth pastes, foods and most household utilities has become a popular means of approach to the 'health-conscious' public. True, some clinics still promote their services to the indigent and the middle class by extensive announcements in the public press; for this, however, the plea of holy charity is used in extenuation. Again and again, advertising agents seeking some new outlet for the practice of their art have developed campaigns to be financed by medical societies or by individual physicians with a view to placing the wares of the medical profession before the public, as the services of musicians, plumbers, electricians and bakers are advertised. Thus far few medical societies of importance have succumbed to the lure of such promotions.

"Medical education of the public is just as much a function of the press as education in the rules of contract bridge, the technic of golf or the proper training of children. The threat of any newspaper that it will omit scientific news of importance in the field of medicine unless physicians purchase advertising space is an idle threat. Any newspaper worthy of the name must publish scientific news. The vast majority of competent editors are convinced that few other news items are of equal significance at the present day. The newspaper that is dominated in its news columns by its advertising department is on the road to ruin." (From the *Journal of the American Medical Association*, March 7, 1931.)

A Job for the Physician-Writer

"The Socialization of Medicine" is the title of the newest volume in the interesting little series called "The Reference Shelf," published, according to its sponsors, for the purpose of making "available, when in need of good debates, collections of articles, briefs, bibliographies, and study outlines on timely subjects for public discussion."

Publication in the series is irregular because the object is to make the material available in each instance at the time when there is the greatest need."

Apparently, then, the greatest need had arrived for a debate upon the socialization of medicine, since a volume on this subject is only now hot off the H. W. Wilson press.

Compiled by Edith M. Phelps, author of a number of similar contributions on civic subjects, this little book follows a standard procedure, presenting briefs for and against socialized practise of medicine followed by general, affirmative and negative discussion clipped from the current periodical publications.

It is interesting to note that the advocates of a socialized reorganization of medical practise are quoted from a variety of important lay publications, the *Nation*, the *North American Review*, the *Century*, the *Scientific Monthly*, and *Harpers*.

The opponents of socialization, on the other hand, being chiefly representatives of organized medicine, have apparently limited their arguments mostly to the columns of their own professional magazines, which are seldom, if ever, picked up by lay readers.

If the attitude of organized medicine is important enough for the compiler of this volume to dig out of the professional journals and line it up against the facile and diversified discussion on the opposing side of the subject in lay literary publications, it may be important enough to take its chance in the columns of these publications in the first place. Otherwise it can have little access to the intelligent lay public which perforce hears very little on the subject beyond the doctrinaire medico-social workers' rosy dream of a new world healed of standardized ills by a standardized group of government healers.

OF GENERAL INTEREST

Dr. C. A. Boreen, of Minneapolis, was recently elected president of the Minnesota Dermatological Society.

Dr. Charlotte Stickney has opened offices in the Granite Exchange Building at St. Cloud, Minnesota. Her practice is limited to Pediatrics.

Dr. Nelson W. Stewart, formerly of North Mankato, has moved to Lead, South Dakota, where he is associated with the Homestake Hospital.

Dr. J. F. Smersh of Owatonna has been appointed secretary of the Steele County Medical Society to fill the vacancy caused by the death of Dr. A. B. Hart.

Dr. Brandt Leopard, who has been located at St. Cloud for the past year with Dr. Richards, has left for Evanston, Illinois, where he will associate himself in practice with Dr. Benjamin Huggins.

The Bratrud Clinic have moved from Warren, Minnesota, to Thief River Falls, Minnesota, and occupy part of the first floor of the new St. Luke's Hospital. Dr. Edward Bratrud is Chief of Staff. Dr. A. M. Smith, formerly of St. Paul, is associated with the Bratrud Clinic as head of the X-ray Department.

MONUMENT FOR DR. MILLARD

In a recent communication from Dr. E. S. Boleyn of Stillwater attention is called to the fact that the grave of Dr. Perry H. Millard in the Stillwater cemetery is entirely unmarked.

Dr. Millard's memory has been honored and perpetuated by the University itself in Millard Hall. It would seem fitting in view of Dr. Millard's outstanding services to the medical profession of the state and considering his long services as dean of the medical school that the medical alumni acknowledge these services by a small contribution towards the erection of a suitable monument for his grave.

The undersigned committee requests that each medical alumnus of the University of Minnesota send his check for \$1.00 to Dr. J. T. Christison, Hamm Building, St. Paul, Minnesota, for the erection of a suitable monument.

Recently the organization of the Medical Alumni of the University contributed the sum of \$25.00 to initiate the undertaking.

There is no money available from Dr. Millard's estate

for this purpose and the Legislature has declined to make appropriations for the same purpose. Your committee feels that in asking for a small contribution no hardship will be caused anyone and that in honoring Dr. Millard's memory in this manner we honor the medical profession of the state.

W. F. BRAASCH, Rochester
E. S. BOLEYN, Stillwater
J. T. CHRISTISON, St. Paul
F. A. ERB, Minneapolis
E. L. TUOHY, Duluth
N. O. PEARCE, Minneapolis

OBITUARY

Dr. Elias P. Case

1849-1930

Word has been received of the death of Dr. Elias P. Case, December 23, 1930, at his home in Oakland, California, at the advanced age of 81 years.

He came to Minnesota as a child with his parents in the early fifties, where the family lived on a farm north of Wells Lake. As a young man he drove horses for Dr. N. M. Bemis, one of the first physicians in Faribault, and studied medicine under him.

He married Emma A. Nutting, second white child born in Faribault, the date of her birth being February 17, 1856. She was the daughter of Truman and Mary Nutting, who kept the first hotel in Faribault.

In 1888 Dr. Case went to Europe, where he spent two years studying surgery in the hospitals of Germany and England.

Dr. Case and his family made their home for twenty-five years in Waterville, where he was one of the leading physicians of the community. In 1890 he built the hospital known as the Samaritan Home on the north shore of Lake Sakatah. This he operated with marked success until the hospital was destroyed by fire.

About the year 1905 the family moved to Corning, California. His wife died there in 1911. Since that time he has practiced his medical profession in Oakland, California. Two sons and a daughter survive him: Mason N. Case of Los Angeles, California; Alex T. Case and Miss Abbie Case of Oakland, California.

SCARLET FEVER TOXIN

The Dick scarlet fever toxin is regarded as a safe and efficient immunizing agent against scarlet fever. The main drawback to its use appears to be that several injections, generally not less than five, must be given before such a degree of immunity is established that the subject no longer gives a positive Dick test. (Jour. A. M. A., February 21, 1931, p. 633.)

CONSULTATION BUREAU

WM. A. O'BRIEN, M.D., *Director*

Minnesota State Medical Association

11 West Summit Avenue

Saint Paul, Minnesota

1. *Question.*—Would appreciate learning what non-surgical treatment can be tried to help a case of procidentia in a female 28 years old. The rectal (anal) sphincter is quite relaxed so that involuntary escape of gas is bothersome. Mineral oil can not be taken for the attendant constipation because of leakage. There are no polypi or hemorrhoids present. Prolapse has been coming on for six years. Does surgery now offer good prospects for cure? Is cauterization of rectal mucosa with actual cautery or chemicals a wise procedure? Are the results worth the trial?

Answer.—In young women surgical treatment offers a good prospect of cure. In older women who cannot have the operation for one reason or another, the ordinary ring pessary may bring relief. You did not state whether or not the trouble was due to laceration incident to delivery. Sometimes relaxation of the anal sphincter is due to lesions of the spinal cord, especially spina bifida. Not all people with spina bifida have neurotrophic lesions, incident to the defect. Approximately 5 per cent of all white adults have a failure of fusion in either the lumbar or sacral vertebrae. If, in addition, the superficial layers are adherent to the deeper structures, a perforation by a dense band of fatty tissue exists or a bulging of the dura, exostosis of canal, tumor-like nodules composed of fibrous muscle and fatty tissue or nerve degeneration is present, neurotrophic effects may result.

2. *Question.*—I have a patient on whom a diagnosis of benign polyp of the stomach has been made. The tumor partially obstructs the pylorus at times, but otherwise the patient is in fair condition. Only a few gastric complaints are to be found on careful questioning. What are the chances of this growth becoming malignant, and what should the treatment be?

Answer.—Benign polyps of the stomach are being reported with increasing frequency. Although less than 100 are on record, many more have probably not been recorded. The average age of appearance of symptoms is between 50 and 60 (although the growth may have been present several years). Certain observers have noted a gradual transition between chronic gastritis, adenoma (polyp) and malignancy. Such growths have been produced experimentally by the use of certain irritants. Malignant transformation has been found in from 12 to 20 per cent of reported cases. Another feature which is of interest is the practically constant finding of achylorhydria with diarrhea (probably due to the absence of hydrochloric acid). Multiple polyps may be present, but if it can be demonstrated that only a small group are to be found, a partial gastrectomy is indicated. Gastric operative specimens have been observed showing both benign tumors and malignant changes.

3. *Question.*—I am going to read a paper at our staff meeting on the subject of postmortem examinations. Can you refer me to some recent publications on this subject?

Answer.—A fine series of articles may be found in the Bulletin of the American College of Sur-

geons, XIV, 40:50 (December), 1930. The one entitled, "Means of Securing Postmortem Examinations," by Ralph G. Mills, M.D., Fond du Lac, Wisconsin, is especially recommended for consideration. The subject of the ways and means of securing postmortem examinations is becoming very popular, and a great amount of time and attention is being devoted to the psychological aspects of the question. When it is recalled that the number required by the various governing organizations for recognition is about the same as can be obtained by simply asking the relatives, it is appreciated that many hospitals can have much better records. There is a tendency at the present time to emphasize the actual number of autopsies or the percentages to be obtained. The quality of these examinations is equally important and should not be lost sight of in the scramble to get under the wire with the required percentage. The reasons for the examination may be summarized as follows: (1) Is the patient alive or dead? (2) Does contagious disease exist? (3) Is inherited disease present? (4) What is the cause of death? (5) disciplinary effect on all; (6) teaching; (7) to render justice; (8) to unearth scandal; (9) vital statistics; (10) insurance claims; (11) study of any rare or unusual disease; (12) to evaluate diagnostic methods; (13) scientific discovery; (14) better embalming; (15) the study of the disease (most important of all). The average work-up given to patients in most hospitals today should result in correlation between the main disease and the autopsy findings in about 85 per cent of the cases. The cults have used the old figure of 50 per cent for some time to show up the medical profession. It is to be recalled that this is based on records compiled more than twenty years ago and much progress has been made since that time. You are to be congratulated for your interest in this most "live" subject. It is recommended as a discussion theme for every staff meeting at least once a year. It is only by bringing the subject constantly before the attention of all staffs that good results can be obtained. Most autopsy permissions depend on good service rendered to the patient, and the development of any uncertainty which the family has in regard to the illness. In this way good care and attention to the patient are stimulated, and the family derives a greater satisfaction from a complete report which is possible only when an autopsy examination is conducted.

4. *Question.*—I have been asked to make a talk before a meeting of country school officers on health problems. I wonder if you have any reprints or material of any kind available that might be useful in preparing something appropriate and significant for a meeting of this kind.

Answer.—The following articles are recommended: "Progress and Prospect in School Health Work," School Health Studies, No. 10, Department of the Interior, Bureau of Education, 1925; "Teaching Health to Ten Thousand Children," Hygeia, November, 1930; "The Classroom

(Continued on Page 370)

MISCELLANEOUS

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

"HEALTH TEACHER" CONVICTED OF VIOLATING MANITOBA MEDICAL ACT

On Friday, January 9, 1931, John Hugh Lally, formerly of St. Paul, Minnesota, was found guilty of treating persons contrary to the provisions of the Medical Act of Manitoba, Canada. The conviction took place at Winnipeg. Lally was fined one hundred dollars and costs.

Lally operated an office at the St. Paul Hotel, St. Paul, during the month of November and departed rather hastily from the State after the State Board of Medical Examiners instituted an investigation of his activities.

The Minnesota Board co-operated with the Manitoba authorities with the above result.

In February, 1929, Lally was convicted of the same offense at Chicago, Illinois.

ST. PAUL NATUROPATH FINED FIVE HUNDRED DOLLARS
State of Minnesota vs. William H. Hirst (two cases)
William H. Hirst, fifty-three years of age, self styled naturopath, entered pleas of guilty on February 26, 1931, to two indictments charging him with maintaining an office and using the title "Doctor" in violation of the Basic Science Law.

The Hon. John W. Boerner, Judge of the District Court, sentenced Hirst to pay a fine of \$500 or serve six months in the Work House for maintaining an office at 138 E. 6th St., St. Paul. Hirst paid the fine and on the other indictment charging him with using the title of "Doctor" Hirst was sentenced to a term of one year in the Workhouse, which sentence was suspended on the unqualified condition that Hirst refrain from practicing healing in any way, shape or manner in the State of Minnesota. Judge Boerner informed Hirst that if any report came to the Court that he was practicing he would be committed to the Work House without a trial. A third indictment charging Hirst with performing an abortion was filed due to the disappearance of the girl who was the star witness for the State. Hirst has been maintaining an office in St. Paul for the past fifteen years and has been quite active in the attempt of the naturopaths to secure recognition in this State. Hirst has been in the limelight considerably during the past two years following the shooting of Lieutenant Miller in an alleged quarrel over a girl. Hirst told the Court that he was married and the father of two children.

Mr. Brist, attorney for the State Board of Medical Examiners, reports very splendid coöperation from Michael F. Kinkead, County Attorney, and his staff, particularly Mr. Lynch and Mr. Bratter; also from Thomas A. Brown, chief of police. Judge Boerner is to be commended for the very rigid terms specified in connection with Hirst's refraining from re-entering the practice of healing in the State of Minnesota.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

MINNESOTA STATE MEDICAL ASSOCIATION

78th Annual Meeting

SCIENTIFIC PROGRAM

TUESDAY MORNING, MAY 5, 1931

Ball Room, Nicollet Hotel
Minneapolis, Minnesota

SYMPOSIUM ON OBSTETRICS

- 8:30 Pre-natal Care. M. C. BERGHEIM, Hawley
8:45 Recurring Pre-eclamptic Toxemia; Its Clinical Significance.

R. D. MUSSEY, Rochester

- 9:00 Accidents of Labor. J. R. MANLEY, Duluth

- 9:15 Infections. L. W. BARRY, St. Paul

- 9:30 Toxic Neuritis in Pregnancy.

N. J. BERKWITZ, Minneapolis

- 9:45 Discussion. J. C. LITZENBERG, Minneapolis

- 10:00 INTERMISSION.

- 10:15 Recent Developments in the Management of Duodenal Ulcers.

D. C. BALFOUR, Rochester

- 10:30 Carcinoma of the Uterus.

GEORGE WARD GRAY, Jr., Professor Obstetrics and Gynecology, Cornell University, New York

George Chase Christian Memorial Lectures

- 11:00 When Does Disease Begin?

CHARLES H. MAYO, Rochester

UNIVERSITY OF MINNESOTA CLINICS

TUESDAY AFTERNOON, MAY 5, 1931

1:00 P. M. to 5:45 P. M.

A. Room 129, Millard Hall, 160 seats

- 1:00 P. M. Surgery.....James M. Hayes

- 1:30 P. M. X-ray Diagnosis.....Leo G. Rigler

- 2:00 P. M. Heart.....S. Marx White

- 2:30 P. M. X-ray Therapy.....K. W. Stenstrom and
Cyrus O. Hansen

- 3:00 P. M. INTERMISSION

- 3:15 P. M. Neurology.....Arthur S. Hamilton

- 3:45 P. M. Surgery.....Arthur A. Zierold

- 4:15 P. M. Arthritis.....B. J. Clawson and
Macnider Wetherby

- 4:45 P. M. Pneumonia.....Hobart A. Reimann

B. Room 102, Institute of Anatomy, 226 seats

- 1:00 P. M. MedicineMoses Barron

- 1:30 P. M. Kidney.....E. T. Bell

- 2:00 P. M. KidneyHilding Berglund

- 2:30 P. M. Heart.....George E. Fahr

- 3:00 P. M. INTERMISSION

- 3:15 P. M. Diabetes.....Archie H. Beard

- 3:45 P. M. Blood.....Frederick H. K. Schaaf

- 4:15 P. M. Malignancy.....O. J. Campbell

- 4:45 P. M. Medicine.....Reuben A. Johnson

C. Eustis Amphitheater, University Hospitals,
160 seats

- 1:00 P. M. Cancer Gynecology.....George Gray Ward, Jr.
1:30 P. M. Pediatrics.....F. C. Rodda
2:00 P. M. Orthopedics.....Wallace H. Cole
2:30 P. M. Pediatrics.....F. J. Huenekens
3:00 P. M. INTERMISSION
3:15 P. M. Heart (Children).....M. J. Shapiro
3:45 P. M. Dermatology.....H. E. Michelson
4:15 P. M. Plastic Surgery.....Harry P. Ritchie
4:45 P. M. Pediatrics.....C. A. Stewart

D. Todd Amphitheater, University Hospitals,
160 seats

- 1:00 P. M. Eye.....Frank E. Burch
1:30 P. M. Heart.....Henry L. Ulrich
2:00 P. M. Ear, Nose and Throat.....Horace Newhart
2:30 P. M. Malignancy.....W. T. Peyton
3:00 P. M. INTERMISSION
3:15 P. M. Surgery.....Owen H. Wangenstein
3:45 P. M. Obstetrics.....R. T. LaVake
4:15 P. M. Gynecology.....John A. Urner
4:45 P. M. Urology.....C. Donald Creevy

Note: Make your selection now of the clinics you desire to attend. The last five minutes of each clinic period will be devoted to questions. Changes between rooms can also be made at this time. For your information clinic A is varied, B chiefly medical, C chiefly pediatrics and D chiefly surgical. If you have any special interest, e.g. heart disease, pediatrics, etc., it will be possible for you to attend every clinic by going from one room to another. There are no duplicate subjects at any time (e.g. 3:15 P. M. neurology, diabetes, pediatric heart disease and surgery). Study the list very carefully and plan your schedule now so that you will not be disappointed. Thirty-two clinics are to be presented in all. Patients will be used as much as possible. This is an opportunity presented by very few State Medical organizations, and we are proud that we have so much talent among our membership.

WEDNESDAY MORNING, MAY 6, 1931

Ball Room, Nicollet Hotel

- 8:30 Common Mistakes in Ocular Diagnosis.
JOHN M. ROBINSON, Duluth
8:45 A New and Effective Non-Surgical Method
for the Treatment of Chronic Suppura-
tion of the Middle Ear.
CHARLES HYMES, Minneapolis
9:00 Traumatic Abdomen. ROY RAITER, Cloquet
9:15 Tuberculin Testing. J. A. MYERS, Minneapolis
9:30 Disease of the Heart with Special Refer-
ence to the General Practitioner.

DREW WILLIAM LUTEN, Asst. Prof. Clinical
Medicine, Washington University, St.
Louis, Missouri

- 10:00 INTERMISSION (Installation of Officers)

SYMPOSIUM ON DIAGNOSIS

- 10:10 General Physical Examination.
E. L. TUOHY, Duluth
10:30 Intravenous Urography.
WILLIAM F. BRAASCH, Rochester
10:45 The Value of X-ray Examination of the
Chest. W. H. UDE, Minneapolis
11:00 The Value of X-ray Examination of the
Stomach and Gall Bladder.
H. M. WEBER, Rochester
11:15 Indications for Examination of the Colon.
E. L. GARDNER, Minneapolis

- 11:30 Indications for Examination of Genito-
Urinary Tract. F. E. B. FOLEY, St. Paul
11:45 Indications for Spinal Puncture.
H. W. WOLTMAN, Rochester

WEDNESDAY AFTERNOON, MAY, 1931

SYMPOSIUM ON THERAPY

- 1:30 Poliomyelitis. J. C. MCKINLEY, Minneapolis
1:45 Trichomonas Vaginalis Vaginitis.
R. J. MOE, Duluth
2:00 Appendicitis. F. C. SCHULTZ, St. Paul
2:15 Salpingitis. W. H. RUMPF, Jr., St. Cloud
2:30 Empyema. S. W. HARRINGTON, Rochester
2:45 Sinus Infections. E. R. BRAY, St. Paul
3:00 INTERMISSION.
3:15 Complications and Results of Prostatectomy.
T. H. SWEETSER, Minneapolis
3:30 Involutional Psychosis.
E. M. HAMMES, St. Paul
3:45 Fracture of the Wrist.
C. A. NEUMANN, Winona
4:00 Fracture of the Hip. A. R. COLVIN, St. Paul
4:15 Fracture of the Humerus.
H. W. MEYERDING, Rochester
4:30 Fracture of the Ankle.
J. S. HOLBROOK, Mankato

WOMEN'S AUXILIARY PROGRAM

Tuesday, May 5

Registration, Nicollet Hotel
Executive Board Luncheon, 12 o'clock, Nicollet Hotel
Executive Board Meeting following the luncheon,
Nicollet Hotel
Banquet, 7:00 P. M., Nicollet Hotel

Wednesday, May 6

Annual Meeting, 10 A. M., Medical Arts Building
Auditorium
Annual Luncheon, 1:30 P. M., Minneapolis Woman's
Club—Followed by program of music and speaking

MEDICAL BROADCAST FOR THE MONTH

The Minnesota State Medical Association
Morning Health Service

The Minnesota State Medical Association broadcasts
weekly at 11:15 o'clock every Wednesday morning over
Station WCCO, Minneapolis and Saint Paul (610 kilo-
cycles or 370.2 meters).

Speaker: William A. O'Brien, M.D., Associate Pro-
fessor of Pathology and Preventive Medicine, Medical
School, University of Minnesota.

The program for the month of April will be as fol-
lows:

- April 1—Health Education (Third Anniversary).
April 8—High Blood Pressure.
April 15—Health in the Home.
April 22—Nervous Exhaustion.
April 29—Cancer of the Kidney.

MINNESOTA SOCIETY OF INTERNAL MEDICINE

The Tenth Semi-Annual Meeting of the Minnesota Society of Internal Medicine will be held in the Eustis Amphitheater at the University April 13, 1931.

The fourth prize of \$250.00 will be awarded by the Minnesota Society of Internal Medicine "to the practicing physician, exclusive of Members of this Society, in the State of Minnesota, who has been deemed most worthy to receive a prize in research in clinical medicine."

All physicians who are in active practice and who are legal residents of Minnesota may become candidates for the award. Physicians employed in government service are eligible if their legal residence is the State of Minnesota. Physicians who are whole-time teachers or research fellows in teaching institutions may not become candidates for this prize.

All inquiries should be addressed to, and these should be submitted to the committee before October 1, 1931.

E. T. F. RICHARDS, Chairman,
Hamm Building, St. Paul, Minn.

PAN AMERICAN MEDICAL ASSOCIATION

The third congress of the Pan American Medical Association will be held in Mexico City, July 26-31, 1931, under the auspices of the government of the Republic of Mexico.

The purpose of the Association is to promote a more intimate understanding between the medical men of North and South America. An effort is being made to further medical contacts between English, Spanish, French and Portuguese speaking physicians of Pan America, and a cordial invitation is extended to all physicians interested.

This meeting affords an opportunity for physicians in this country to pay a visit to our sister republic; a trip which has become more and more popular in the last few years.

Officers of the association are: Dr. Francisco M. Fernandez, president; Dr. J. E. Lopez-Silvero, executive secretary; and Dr. Conrad Berenz, treasurer. General offices are at Havana, Cuba.

Further information may be obtained by addressing Dr. Francisco de P. Miranda, Executive Secretary of the Organization Committee, Departamento de Salubridad Publica, Mexico City, Mexico.

WRIGHT COUNTY SOCIETY

The Wright County Medical Society held their first quarterly meeting at the office of Dr. William Hart of Monticello, January 29, 1931.

Dr. W. A. O'Brien and Dr. W. T. Peyton, both of the University, discussed the pathology of the thyroid and its surgical treatment. The subject was handled in the light of recent scientific findings and aroused a great deal of interest. The masterly presentation by the speakers gave evidence that they had the subject well in hand. Several cases were presented by doctors of Wright County. The third speaker, Mr. A. G. Stasel, manager of the Nicollet Clinic, gave a very instructive and interesting talk on credits and collections.

The keenness with which he presented his subject aroused sufficient interest in credit and collection methods to result in a committee being appointed to arrange for a doctors' independent credit bureau to be established in Wright County.

Reading of the minutes of the October meeting of 1930 was postponed until the second quarterly meeting which will be held at Annandale, Minnesota, April, 1931.

The ladies were entertained by Mrs. Frank Ellison, of Monticello. A splendid supper was served at the residence of Dr. and Mrs. Hart.

The meeting adjourned.

C. L. ROHOLT, Secretary.

WOMEN'S AUXILIARY *Minnesota State Medical Association*

President—Mrs. S. S. Hesselgrave, St. Paul
Chairman Press and Publicity—Mrs. E. A. Meyerding, St. Paul
Editor—Mrs. A. A. Passer, Olivia

PANORAMIC VIEW OF THE WOMAN'S AUXILIARY TO THE A. M. A. IN FOUR ARTICLES

2. NORTH CENTRAL STATES

MRS. JAMES BLAKE

According to the Constitution and By-Laws of the Auxiliary to the American Medical Association the Organization program is carried on by the active work of the Vice-Presidents. Mrs. Southgate Leigh of Norfolk, Va., is first Vice-President and automatically Chairman of Organization. Due to her location on the map, the Second Vice-President finds herself interested in the destinies of the North Central group of states.

Looking backward with pleasant memories to Detroit, and forward with delightful anticipations to Philadelphia, we find this group of states all doing something of common interest.

In the January Journal of the Indiana Medical Society, the Auxiliary President stresses the importance of more constructive work on the part of her organized County groups. "Physicians' wives," she says, in her New Year's address, "hold an enviable position in being privileged to have a part in a world-wide health program, and I would urge every physician's wife to bring before other women dependable knowledge, and a just appreciation of the real spirit and purpose and actual achievements of the medical profession." So from Indiana we know we are to have constructive work during this year. Physicians as a class are not prone to participate in legislative matters but when four distinctly separate bills, which affect the profession directly, are presented during one session of a State's Legislature, it is time to be up and doing.

Such is Indiana's situation this year and the doctors of the 7th district have thought it worth while to instruct their Auxiliary members on these subjects that their influence may be properly used. The Indiana Journal never fails to give the Auxiliary space, and it is little wonder the Indiana women are up and coming, when they have such Editorial Notes to enlighten and

guide them in their constructive Program work, as one finds in this same Journal.

Kansas is slowly getting a few things accomplished. A world-wide depression has rendered prophets quite fameless abroad as well as at home, but the Doctor's wife in Kansas is coming into her own, and we prophesy that the Auxiliary will climb to the top due to the indomitable spirit of the leaders in that state.

In Illinois the motto might well read—"Builders we are, and builders we must ever be. Builders, not in stone that shelters life, but builders in life." We find good constructive programs, of well-balanced educational value, we find a Journal ever ready to broadcast Auxiliary news, and best of all we find a healthy Organization line-up, and an Advisory Board from their Medical Society. Several of their County groups are having their members get busy with the "Health Audit Program."

One project of worthy mention comes from Vermillion County on the Eastern boundary of the state. The County Auxiliary put on the Health Institute in Danville last November. A member from every agency in the county working out any kind of a Health program was included in the personnel of the speakers. It was for just one day, but it was worth 365 as a rouser for Auxiliary work. It really was sort of a Christmas Seal Campaign opening, a get-together of Club Women and P. T. A. groups in the County. And what a wise idea for a Medical Auxiliary to have the head lines in the plans for such a "Health Day."

Wisconsin, Iowa and South Dakota are among the latest States to join the National Auxiliary. Organization is the keynote for their work, and the National Study Envelopes are offered as program material. Right now if the modern Doctor's wife needs to get one thing more than another from her organization, it is the knowledge of what is going on in this world; especially the world of Medicine. Women are discriminating more carefully in the clubs they are joining. They are asking what membership will mean to them, what they will get out of it. For that reason the subjects for study should be more carefully chosen, and the roll call should be made to count for something more than jokes and quotations from forgotten poets. It isn't a pleasant feeling for a busy mother who rides miles to a meeting to say when it is all over—"I can't say I know any more now than when I started." And so we find these three states getting themselves established on a firm foundation, with the National program envelopes scattered far and wide to aid and encourage Auxiliary members, already in, and prospective members.

Montana and North Dakota are debating pro-and-con, but as Mrs. Hoxie said in her Detroit report—"I believe it will be a mistake from now on to organize a new state, unless it appears reasonably certain that there is interest enough among the Doctors who want the Auxiliary, so they will foster it and stand back of it." And so we leave Montana half hearted about forming an Auxiliary, and North Dakota in the air.

We find Michigan giving intelligent co-operation with state and county officials. Women, like men, are interested in the improvement of civic affairs and healthful

living and are realizing that they need to be armed with a definite knowledge of health laws and public health practices.

Missouri is in a very healthy condition. We find that Mrs. A. B. McGlothlin, the President-Elect of the Woman's Auxiliary to the American Medical Association, will attend President Hoover's White House Conference for Child Health and Protection to be held in Washington, D. C., February 19 to 21. Mrs. G. H. Hoxie, the President for last year, will also attend the White House Conference.

Mrs. A. W. McAlester tells us the women of Missouri are finding the Study Envelopes, published by the Education Committee of the Woman's Auxiliary to the American Medical Association, most interesting and instructive. The Studies on "Common Defects in Children," and on "Diphtheria," "Smallpox" and "Typhoid Fever" were recommended by the Department of Health in the Missouri Branch, National Congress of Parents and Teachers, for use on Parent Teacher Programs. Eight hundred copies of each were distributed for use in Parent Teacher Units. Three hundred were requested and supplied for use in Parent Education Classes. Requests are constantly coming in for additional copies of the studies for use by teachers and Parent Teacher Units. The Department of Public Information of the Extension Division of the University of Missouri is including these studies in its suggested programs for clubs in the Missouri Federation of Women's Clubs, and P. T. A. programs. This department requested back numbers of Hygeia for use in such programs. Three hundred copies of Hygeia were supplied by women in the state and by the circulation manager and are being extensively used in club programs. The Missouri Chairman of Public Relations is planning to have a copy of each of the studies "Common Defects in Children," and "Communicable Disease Control," sent to each county school superintendent in the state. Several of the County Auxiliaries are using the study envelopes in their programs.

Mrs. M. P. Overholser of Harrisonville, Mo., has been appointed chairman of Public Relations in the Missouri Auxiliary. This Auxiliary maintains a scholarship for a medical student, per capita quotas being assigned to each county Auxiliary.

They also have sent in 30 per cent of the total number of Hygeia subscriptions recorded from all Auxiliaries from January 1, 1930, to January 1, 1931. Some county Auxiliaries provide Hygeia for all their teachers. Among these are Buchanan, Gentry and Lafayette. Cape Girardeau County Auxiliary has just finished paying a \$1,000.00 pledge to a hospital in the city and is now ready for another kind of work. They are a live group and certainly work hard to be able to accomplish so many wonderful worth while things.

Minnesota, the North Star State, has had a busy and successful year on organization. The President and Organization Chairman have visited over the state and planned meetings and Educational programs with many County Groups. In October the International Medical Assembly met in Minneapolis, and at this time the Hennepin County Auxiliary celebrated its twentieth Anniversary, by being hostess for five days to the visit-

ing Doctors' wives. A great many social affairs and an Educational Day, which included a speaker on Public Health, were features. Hennepin County is having a year with a definite program. Each month a speaker is scheduled, and one meeting during the year is reciprocity day and each Auxiliary in the state is invited to send visitors. This group features Philanthropic work for T. B. patients at Glen Lake and does much for the Library at the Sanatorium. They have helped the Medical Society furnish their Library and Club Rooms, spending \$1,000.00.

Ramsey County does much the same work. They have a Scholarship Fund for Medical Students. St. Louis County is noted for work in the Public Relations Field. One of the other Counties takes care of a Nurse's Scholarship. The Minnesota Auxiliary has a splendid Advisory Board and a page in the State Journal. The President was one of the speakers on the program for the Annual Conference of Secretaries of the Component Societies of the Minnesota State Medical Association, held in St. Paul the first week in February. This is the first time the Auxiliary has been asked to take part in this Annual affair. Mrs. Hesselgrave spoke on "Uses of the Auxiliary."

And so closing my review of the work of the North Central Group of states may I say again:
Builders we are, and Builders we must ever be
Builders not in stone that shelters life, but
Builders in life itself—ever remembering the future of
the world for generations to come depends upon what
we *think* and *will* and *do* today.

HENNEPIN COUNTY AUXILIARY

The first regular meeting of the year 1931 was held in the lounge of the Hennepin County Medical Society rooms in the Medical Arts Building, February 18, at 2:30 P. M. Mrs. Martin Nordland, the new president of the auxiliary, was in the chair. She introduced Dr. Stephen H. Baxter, president of the Hennepin County Medical Society, who spoke briefly in appreciation of the services the auxiliary was rendering to the profession and suggested some ways in which the auxiliary can be of definite service to the medical society. He was followed by Dr. J. A. Watson, who discussed the question of medical ethics in a most interesting manner.

Mrs. James Blake presented the need of a Psychopathic Hospital in Minneapolis. The Hennepin County Auxiliary went on record as endorsing this movement. The newly appointed committee chairmen submitted the names of their committee members and outlined their plans for the year. It was decided to give an afternoon card party in the Hennepin County Medical Society rooms the Monday after Easter for the benefit of the Philanthropic Fund, and an evening party in the fall to which the husbands of the members of the auxiliary will be invited.

Plans for the entertainment of the women accompanying the doctors who will come to the State Medical Association in May were discussed. The meeting was followed by a tea and social hour with a musical

program of songs given by Mrs. Herbert W. Jones, accompanied by Mrs. J. C. Wilcox.

MEEKER COUNTY AUXILIARY

Meeker County Auxiliary was organized the eleventh of February and voted to affiliate with the state and national associations. Mrs. James Blake, Hopkins, chairman of organization, and Mrs. Hewson, of Stillwater, were guests at the meeting, which was held in Litchfield. Mrs. A. W. Robertson, of Litchfield, was chosen president; Mrs. Brigham, of Watkins, was elected vice president; Mrs. G. A. C. Cutts, of Litchfield, was made secretary and treasurer.

MOWER COUNTY AUXILIARY

A women's auxiliary to the Mower County Medical Society was organized at Austin, the twenty-fourth of February. Mrs. S. S. Hesselgrave, Mrs. Edward Schons, Mrs. Hengstler, officers of the State Auxiliary, motored to Austin to attend the meeting. Mrs. Hesselgrave gave a splendid talk on the national, state and county auxiliaries. An open discussion followed and the group elected Mrs. A. W. Allen, president; Mrs. M. W. Morse, of Le Roy, vice president; Mrs. P. A. Lommen, of Austin, secretary, and Mrs. G. E. Hertel, treasurer.

OLMSTED COUNTY AUXILIARY

A regular business meeting of the Olmsted County Auxiliary was held at the home of Mrs. W. F. Braasch, Rochester, the twelfth of February. Mrs. Hesselgrave, state president, and Mrs. Edward Schons, state corresponding secretary, were guests at this meeting. The auxiliary voted to join the State Women's Auxiliary at this meeting, and is thereby automatically affiliated with the national association. Mrs. J. E. Crewe, retiring president, presided at the business session. Mrs. M. S. Henderson was chosen president to succeed Mrs. Crewe; Mrs. George Steven of Byron was elected vice president; Mrs. F. C. Dolder, of Eyota, was made secretary, and Mrs. G. T. Joyce was made treasurer. The Olmsted County Women's Auxiliary is making its chief activity the cutting of garments for the Red Cross.

ST. LOUIS COUNTY AUXILIARY

The St. Louis County Auxiliary has had an active year under the direction of Mrs. F. N. Knapp, of Duluth. Other officers are first vice president, Mrs. F. F. Slyfield; second vice president, Mrs. F. J. Lepak; secretary, Mrs. T. O. Young; corresponding secretary, Mrs. W. N. Graves; treasurer, Mrs. A. J. Bianco. Food, clothing and toys were distributed to fifty-two families at Christmas. Mrs. Hesselgrave was a guest at the January meeting, at which a Chinese luncheon was served and a play was read by Miss Hoffman. A dance was given in January and the doctors and their wives from Superior were guests.

The auxiliary plans in conjunction with all of its meetings an educational program, such as book reviews, talks by prominent doctors, discussion of public relations. Books have been donated and each member has pledged to earn or donate three or more dollars for the philanthropic work.

RED RIVER VALLEY AUXILIARY

Officers for the Red River Valley Auxiliary are: President, Mrs. W. H. Hollands, Fisher; first vice president, Mrs. Bernard, Thief River Falls; second vice president, Mrs. C. L. Oppegaard, Crookston; secretary, Mrs. O. L. Bertelson, Crookston; treasurer, Mrs. J. F. Norman, Crookston. At the annual meeting in December Mrs. Emil Geist of Minneapolis was a guest of the auxiliary.

RICE COUNTY AUXILIARY

On the evening of February fourth, Dr. and Mrs. J. M. Murdoch entertained the members of the Rice County Medical Society, the auxiliary and nurses at a banquet, followed by music and dances. Dr. Murdoch presided at the business meeting of the medical society. The auxiliary was represented on the program by Mrs. Murdoch, who read a paper on "Health Work Interests." Dr. Schesselman, of Mankato, gave a talk about the meeting of the Southern Minnesota Medical Society, which will be held in Faribault in June. Dr. Horace Newhart, of Minneapolis, gave an illustrated lecture on mastoids. Out-of-town guests were: Dr. and Mrs. Newhart; Dr. Bedie and Dr. Swanson, of Cannon Falls, and Dr. Schesselman, of Mankato.

WASHINGTON COUNTY AUXILIARY

A one o'clock luncheon meeting at Lowell Inn, Stillwater, featured the February meeting of the Washington County Auxiliary. Mrs. John W. Stuhr, president, called the meeting to order. Paul Fesler, superintendent of the University Hospital, gave an illustrated lecture on what the University Hospital is doing for the people of the state.

CONSULTATION BUREAU

(Continued from page 364)

Teacher and Health Education," Hygeia, October, 1930; "How Is Your Child's Health Equipment," Hygeia, November, 1930. An article is to appear in the April number of EVERYBODY'S HEALTH under the division of Health for Teachers and Pupils entitled "New School Health Records Valuable." This is a discussion of the new health record card and its uses. As you probably know, permanent health records of all school children are now required by law, and this article deals in detailed way with the law, its application and possibilities. The Millbank Memorial Fund, quarterly bulletin, July, 1925, deals with rural school health work, and may also be of value to you. By all means read the April number of EVERYBODY'S HEALTH, as this matter is of vital importance to every practicing physician in Minnesota.

PROCEEDINGS OF THE REGIONAL CONFERENCE*

Those present at the Conference were: Mr. Theodore Wiprud, Milwaukee, Wis.; Dr. Otho Fiedler, Sheboygan, President-Elect, Wisconsin State Medical Association; Dr. W. F. Braasch, Rochester, Minn.; Dr. H. W. Skelsey, Secretary, Fargo, N. D.; Mr. J. G. Crownhart, Secretary, Wisc.; Dr. C. B. Wright, Minneapolis, Minn.; Dr. E. A. Meyerding, St. Paul, Minn.; Dr. H. M. Workman, Tracy, Minn.; Dr. W. A. Rohlf, Waverly, Iowa, President; Dr. George Earl, St. Paul, Minn.; Dr. L. Sogge, President, Windom, Minn.; Mr. Vernon Blank, Managing Director, Iowa; Dr. Andrew Carr, President, Minot, N. D.; Dr. O. E. Locken, Crookston, Minn..

AUXILIARY

Dr. George Earl, St. Paul, Chairman of the Committee on Public Health Education, opened the informal discussions of the Conference with a suggestion for a definite, constructive program of coöperation between the women of the State and County Auxiliaries and the organized Medical Profession. Dr. Earl declared that the women are anxious to help and ask only that the medical profession assume definite leadership in their program.

The following plan was drawn up in the discussion that followed:

1. Auxiliaries should be asked not to pass resolutions on any health or medical questions, particularly in legislative matters, without the approval of the Legislative Committee of the State Medical Association. The same course should incidentally be recommended to county medical societies and any other organizations of the medical profession. It was the emphatic sentiment of the group that endorsement of most movements pertaining to health and medical care, to sociological and economic matters, should be confined to the principle involved and not the particular measure proposed.

2. A definite scheme for securing the presence of Auxiliary members on the boards of all lay women's organizations was considered advisable. Such a scheme could be modeled upon the similar plan of the Hennepin County Medical Society.

3. Auxiliaries should be instructed to inform themselves thoroughly about the health and public welfare activities of all women's organizations.

4. They should share with the various branches of organized medicine the obligation to present the truth about health to the public. It is also their responsibility to see that those to whom they delegate this important function, whether medical men or laymen, are qualified for the task.

5. Every county society should have a committee that will actively coöperate with and advise its Auxiliary. Initiative should be developed in each local unit for the work.

SPEAKERS' BUREAU

Public education in matters relating to health should

*Regional conference of officers of the State Medical Societies of Montana, North and South Dakota, Iowa, Nebraska, Wisconsin and Minnesota, held in St. Paul, February 8, 1931.

come from the medical profession, members of the Conference agreed. There is a lively public interest in these matters today. If the medical profession does not satisfy it legitimately someone else, less well qualified, will. The task of public health education cannot be delegated to other agencies without loss of medical prestige.

Conference members urged practical training in public speaking upon the physicians who are to do this work. They pointed out very definitely that no individual benefits, in their experience, ever came from speaking before lay groups and that the ancient notion that a practising physician may not ethically speak in his own community is out-worn and obsolete.

In the main, talks to the laity by the medical profession should tell what scientific medicine means and what its contribution has been to modern life and modern health protection. It was pointed out that many people in the United States do not, even now, know the difference between the varieties of groups using the designation "Doctor." It is the duty of the medical profession to tell them.

PUBLIC RELATIONS

Dr. O. E. Locken, Mayor of Crookston, pointed to the public relations of the medical society he represents as an example of successful civic functioning of a unit of organized medicine. Physicians have assumed direction and control of public health and sanitation in his community. They inaugurated milk inspection and take the lead in every type of welfare activity. A yearly medical economics meeting is part of his county society's program.

Wisconsin members reported that copies of De Kruij's "The Microbe Hunters" were sent to all members of the Legislature this year through their family physicians.

In these matters, the Conference agreed, it should be the function of the American Medical Association to stimulate the state associations and for the state associations in their turn to stimulate the county societies.

SOCIALIZATION OF MEDICINE

Conference members agreed with Dr. Otho Fiedler of Wisconsin, that Social Medicine is definitely on the way in America. The Medical Profession must be ready for it.

In medicine, as in all branches today, they pointed out, the great problem is distribution. The problem of distribution of medical knowledge increases and becomes more complicated with increasing medical knowledge. In America it is still possible for the medical profession to take the initiative in solving the problem of bringing to the individual the products of medical science at a price the individual is able to pay.

In Europe twenty-three countries have a system of compulsory socialized medicine. Dr. Fiedler said that seventeen have voluntary social medicine. Canada is engaged in socializing its medical service and even in the State of Massachusetts a bill has been introduced into the State Legislature, providing for employment of the medical profession by the state. Current magazines are full of articles on this phase of medical development.

Socialization of medicine in America has interesting and important possibilities in the opinion of the Conference. But the Medical Profession should be ready with a policy or plan when it comes. Conference members felt that the American Medical Association is failing to take proper cognizance of the situation. They felt that every county medical society should be studying the problem.

The following suggestion for acting by the conference was made by Dr. Fiedler: "It is the sense of this body that the question of social medicine is of pressing enough importance to warrant a thorough study and compilation of statistics on the whole question; that every state association should be collecting material which should be available to all who make inquiries on the subject and that a copy of this suggestion be sent to Dr. Olin West, Secretary of the American Medical Association, for his coöperation and assistance in avoiding duplication."

It was the opinion of the conference that every state association should organize a committee also to study the question.

Mr. J. G. Crownhart, Executive Secretary of the Wisconsin Medical Society, suggested that the following material might be helpful.

Some Medical Problems Ahead, W. C. Rappleye, M.D., Director of Study Commission on Medical Education, New Haven, Conn.
Some Problems of Medical Service, W. C. Rappleye, M.D., New Haven, Conn.
Canadian Public Health Journal (outlining the progress of State Medicine in Canada), December, 1930. Toronto.

Current economic problems of the profession in America were grouped for discussion under the following heads:

1. Legislation.
2. Lay Organizations.
3. State Boards of Health.
4. The University Medical Schools.

The Iowa plan for care of the indigent sick by contract between the county medical society and the authorities in charge was discussed with reference to a decision recently handed down by the Supreme Court of California, relative to the practice of a profession by a corporation. By this decision, corporations will be prevented from practice either of medicine or law, in California. Mr. Vernon D. Blank of Des Moines, Iowa, Managing Director of the Iowa State Medical Society, indicated that Iowa county medical societies, who are parties to contracts for the care of the institutionalized sick, might, in the future, sign their contracts individually rather than as a corporation.

Dr. West's attitude toward the growth of contract practice, in that it tends to stimulate a situation which the medical profession should particularly wish to avoid, was mentioned.

The conference agreed, however, that some form of collective bargaining in medicine as in other things was inevitable. The question is now, "Who is to do the bargaining?" Somebody has to negotiate in these matters with insurance companies, industries, legislators. For the good of the public as well as the doctors, the conference believes it should be the medical profession.

There is a tremendous economic waste in America

due to poor health and unwholesome sanitary conditions. The first survey of public health to indicate this condition was made in Roosevelt's time, conferees recalled.

It is obviously up to the medical profession to lead in checking this serious economic loss in America, they believe. The State has a right to expect it. The great need today of the medical profession, as well as the public, is medical statesmen to do the job.

Group Insurance was discussed as the logical policy for protection of the individual in any system of contract practice. Such group malpractice insurance is the rule under the Iowa plan.

STATE BOARD OF HEALTH

It was agreed by the Conference that physicians employed in public health work, in state institutions, in state enterprises, railroad corporations, city institutions and in public service, should be required to be members of the County Medical Society of the locality. The presence of members of the State Association on the State Board of Health was thought to be the best means of securing such standards on the part of the hiring groups. It was suggested that influence brought to bear from the State Board of Health is more effective and politic than legislation in such matters.

SCIENTIFIC SOCIETIES

The value of such societies as the Interstate Post Graduate Assembly, the American College of Physicians and the American College of Surgeons was admitted by the conference. It was the sentiment, however, that all of them might better be integral parts of the American Medical Association.

LEGISLATION

North Dakota representatives outlined pending bills before the legislature in North Dakota which include: a Registration Bill, a Hospital Bill (admitting cults), a Basic Science Bill and a Naturopath Bill. In connection with compulsory registration law now pending in North Dakota, the Conference was told that Minnesota is much pleased with its own registration law.

COUNTY SOCIETIES

The American Medical Association is at work on a model constitution for county medical societies. Such a constitution should, in the conferees' opinion, offer considerable help in dealing with difficult problems of expulsion from county medical societies and of dealing with the narcotic traffic.

SUGGESTIONS FOR FUTURE NORTHWEST REGIONAL CONFERENCES

It was agreed that all of the delegates to the American Medical Association from the Northwest states should attend these regional conferences. Such a plan would secure agreement and group action among the Northwest delegates on matters of vital importance.

It was also suggested that a representative from the Bureau of Legal Medicine and the Bureau of Medical Economics of the American Medical Association be invited to attend next year's conference.

Conference groups should be kept small, however, to facilitate informal discussions, it was generally agreed. For the 1932 program it was suggested that three or four problems be selected for particular consideration. Each member of the conference will have an opportu-

nity to make his own suggestions for the choice of problems.

Mr. Crownhart proposed that between meetings, confidential information might, with benefit, be passed around periodically between the states. He suggested that each society be asked to send something on to its fellow societies once a month. For necessary mimeographing and mailing he offered the facilities of his Wisconsin office.

It was decided that the 1932 meeting would be held in the Twin Cities as the most convenient centers to the states involved. Appreciation for this year's entertainment was expressed to Minnesota.

ELECTION OF OFFICERS

Dr. Otho Fiedler, Sheboygan, Wisconsin, President-Elect of the Wisconsin State Medical Society, was elected President of the Conference; Mr. Vernon D. Blank, Des Moines, Iowa, Managing Director of the Iowa State Medical Society, was elected secretary. Dr. Fiedler, as President, is also to act as Chairman of the Program Committee.

PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of February 11, 1931

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, February 11, 1931. After dinner at 7 o'clock, the meeting was called to order by the President, Dr. J. S. Gilfillan. There were thirty-nine members and one visitor present.

In the absence of the Secretary the minutes of the January meeting were read by Dr. Carl Drake.

Dr. F. R. Wright (Minneapolis) read the following memorial of the life of Dr. F. A. Dunsmoor:

FREDERICK A. DUNSMOOR was born May 28, 1853, in Harmony, a small town later called Richfield, and now a part of Minneapolis. He died on December 16, 1930, at his home in Hollywood, California.

In his death American surgery and this Academy have sustained a grievous loss. His scheme in life was to improve his own qualifications and continuously advance the progress of his profession.

He began the vocation of his choice early in life; at the age of sixteen he entered the office of Doctors Goodrich and Kimball to study medicine. He acquired his preliminary education in a Minneapolis High School and the University of Minnesota, and pursued his medical education in the Bellevue University and Hospital of New York City. Upon his return to Minneapolis he entered into partnership with Dr. H. H. Kimball, commencing to practice independently in 1877. He was a dominant factor in all of the medical schools which led up to the organization of the Medical Department of our State University.

Dr. Dunsmoor bought the Winslow House and started the Minnesota Hospital College and served as its vice-president and Dean; he was also the Professor of Surgery, and Surgeon to the Dispensary connected with this institution. He aided the Professor

of Ophthalmology to establish an Eye, Ear and Nose Clinic which led up to the establishment of the Departments of Ophthalmology and Otolaryngology now existing in our Minnesota State University.

He was one of the founders of the Asbury Hospital and for many years the leading surgeon on the staff. Following this he became associated with the Swedish Hospital. When the Medical Department of the University was organized in 1888 he was appointed to the chair of Clinical and Operative Surgery, which he held until 1913. During the last ten or twelve years of his active career his work was done at St. Barnabas' Hospital. He was one of the pioneer surgeons of Minnesota during the days when native genius and devotion to science were the chief elements that led to success.

In addition to being a constant student, encouraging research, original in thought and technic, a magnetic teacher, and an able clinician, Dr. Dunsmoor was a gifted writer, publishing his articles on his specialties in the leading medical journals of the country. He was keen in debate. He had a flare for picking out the valuable points in papers, to which he listened attentively, thus emphasizing their importance. He did not confine his usefulness to his profession but took a keen interest in civic affairs and the general welfare of the community and thus became an eminent citizen.

Dr. Dunsmoor took an active part in the meetings that resulted in the formation of this Academy. He nominated its first president. The continuous, growing success of this medical society, which its history demonstrates, was greatly aided by his activities in its proceedings.

Early in life he established the habit of taking a vacation each year, during which he would visit the larger hospitals and scientific centers in this country and abroad. One of his chief characteristics was his ability to do an enormous amount of work apparently without fatigue. He was a wonderfully dexterous operator, as hundreds of his devoted students throughout the country will testify. He was a lover of Nature, spending a great deal of his time in the country and in travel. He loved "the spirit of the lakes and the seas and rivers."

His domestic life was delightfully pleasant, as all those who had the privilege of visiting his fine home on Tenth Street in Minneapolis will testify.

In addition to all his virtues was the gift of friendship; fortunate were those who enjoyed it. His wide range of travel and information and well-stored mind rendered his companionship most enjoyable and profitable.

To his two daughters, Mrs. Homer P. Clark, St. Paul, and Mrs. Frederick W. McCartney, Denver; a brother, Dr. John Dunsmoor, Los Angeles; and three nieces in Minneapolis, Mrs. A. W. Armatage, Mrs. Horace Lowry and Mrs. N. H. Scheldrup, we extend our profound sympathy.

(Signed) JOHN F. FULTON, *Chairman*,
EMIL S. GEIST,
FRANKLIN R. WRIGHT,
Committee.

DR. GEORGE N. RUHBERG (St. Paul) read his thesis, entitled "Paresis and Malaria." (To appear in MINNESOTA MEDICINE.)

DISCUSSION

DR. W. H. HENGSTLER (St. Paul): I want to express my appreciation of this fine thesis which Dr. Ruhberg has presented upon a very pertinent subject. I was very much impressed by the emphasis which he placed on the early diagnosis of syphilis, and I want to concur with him in that. I think if more syphilis of the central nervous system were recognized early we would have less need for the malaria treatment. I should like to call attention to the fact that in certain provinces of China (concerning which I had occasion to read in looking up the literature on this subject a few years ago), where malaria predominated among the native population, although syphilis is very prevalent there is positively no neuro-syphilis known. These observations were made by a man named Nathaniel Berkowitz, who was located in China.

Dr. Ruhberg stated that the relationship of malaria to syphilis is not known. I believe that is true. I believe that the mechanism by which the malaria acts upon the syphilis is as yet unknown, but this Chinese situation would indicate that there is some relationship between the prevalence of malaria and the occurrence of syphilis in the blood stream, but not in the cerebrospinal system.

Attention should also be called to examination of the pupils of patients who are suspected of having syphilis. Pupillary fixation to light and accommodation will often give the early diagnosis of cerebrospinal syphilis before any other manifestations are present. The question of the relationship between the clinical symptoms and the serological findings in neurosyphilis, particularly in the patient who has been under treatment and as to whether or not he is cured, is one of importance. At the meeting of the Central Neuropsychiatric Association which was held in Ann Arbor, Michigan, some three or four years ago, Dr. Camp and his associates presented some of their work in neurosyphilis and called attention to the fact that the clinical picture was much more important than the serological findings. If a man obtained a remission, the presence of positive serological tests was not regarded as anything to worry about particularly, as long as the clinical picture remained satisfactory, unless of course the spinal fluid was becoming more actively positive.

Dr. Ruhberg stated that cases of paresis for malarial treatment must be carefully selected. In this I also agree with him. One cannot treat paretics with malaria indiscriminately, because so many of them are so low in vitality and physically depleted that the malaria treatment would kill them; so a proper selection of cases for this type of treatment is of the utmost importance, and no case should be selected who is not physically fit to stand the malaria onslaught. Finally, I believe that it must be conceded by all that the proper place for treatment of paresis with malaria is in an institution. The private practice of neurology, as the ordinary practitioner carries it out, is hardly the place to treat with malaria. In an institution a large number of cases are handled and there the malaria strains can

be kept active all of the time and the patients can have the adequate facilities for proper care.

Again I wish to say that Dr. Ruhberg's paper was very fine, and that I appreciated hearing it.

DR. F. R. WRIGHT (Minneapolis): When one tries to reason out why malaria affects late cases of syphilis he must review those facts which bring about the cure or control of syphilis. A man infected with syphilis produces in the body certain protein substances called antibodies or immune bodies, the detection of which is called the Wassermann reaction. We treat the patient with salvarsan, mercury or bismuth, but none of these kill spirochetes. When these drugs are introduced into the body, they stimulate the tissues to produce a toxalbumin, which is a stronger spirocheticide than those protein substances produced by nature. When the tissues of our patient become so accustomed to the presence of arsenic, mercury and bismuth that they no longer respond and produce a toxin-albumin, which will destroy the spirochetes, we must find some substance to replace them which will produce a toxalbumin capable of destroying these spirochetes. This we find in malaria. The growth of the plasmodium malarie in the body produces a certain protein substance which gives a Wassermann reaction. Whether these protein substances produced by malaria are the same as those produced by the presence of syphilis, we do not know, but they undoubtedly are of a similar nature. Is it not possible that these chemical substances produced by the growth of malaria are able to destroy or control the disease even after those substances produced by the presence of spirochete, or by the administration of arsenic, mercury and bismuth have failed?

DR. E. M. HAMMES (St. Paul): Dr. Ruhberg's paper is a very timely one. Any paper that calls attention to the early diagnosis of neurosyphilis is timely, for the earlier we recognize and diagnose these cases the less will be the destructive changes and the more favorable the prognosis.

Syphilographers tell us that syphilis in this country is on the decline. Lida J. Usilton, in a study of the prevalence of venereal disease in the United States, estimates that there are approximately 1,500,000 active cases of venereal disease, out of which about 700,000 are active cases of syphilis. To this must be added the large group of cases which are not under treatment and the still larger group which have positive blood Wassermanns and are asymptomatic.

In about 30 per cent of the cases we obtain a history that the patient has had no knowledge of having had a previous syphilitic infection. In neurosyphilis as a group the blood Wassermann is negative in about 50 per cent of the cases. For that reason the early and thorough spinal fluid study is essential in every suspected case and in every organic neurologic case where the diagnosis is in doubt.

The psychoses associated with syphilis of the brain come under two large groups. The one group comprises vascular syphilis associated with the psychosis. The second group comprises the genuine cases of general paresis. There are many instances in which one is unable to differentiate between the two conditions ex-

cept that perhaps in the former group the response to antisyphilitic treatment is much more rapid and much more favorable.

We frequently speak of the paretic spinal fluid syndrome, characterized by a moderately high cell count and a 4 plus Wassermann and a typical paretic colloidal gold curve. However, this serological picture does occur in other forms of neurosyphilis. I recall a patient who to my knowledge has had a typical paretic spinal fluid syndrome since 1919, who is perfectly well today except for a dilated pupil and who has never manifested the slightest evidence of paresis.

Malaria undoubtedly is the best recognized treatment for general paresis. It is fraught with a certain amount of danger. According to statistics from the various clinics there is a death rate of approximately 20 per cent directly due to the malarial infection. However, we are dealing with a fatal, degenerative disease and our attitude toward this treatment should be the same as some of the heroic forms of treatment which the surgeon uses in his cancer problems.

Prior to the introduction of the treatment by malaria we were unable to secure a negative spinal fluid in a case of paresis in spite of the fact that we gave these patients thorough and prolonged treatment, both intravenous and intraspinal, for a period of months and months. Since we have been using malaria in our treatment of paretics we not only have had a greater percentage and longer remissions, but have obtained negative serological findings in the spinal fluid in a fairly large group. Sometimes these favorable serological findings do not manifest themselves until months or even a year after the discontinuance of the malarial treatment.

Definite contraindications to malaria are particularly, hypertension, the various forms of nephritis, evidences of myocardial degeneration, and a general devitalized state of the patient. I recall one case of general paresis with a blood pressure of 220/115 in which we gave malaria. With each chill the blood pressure showed a definite drop. After five chills the blood pressure was 85/40 and the patient went into a state of collapse. Quinin was given immediately, intravenously, and various stimulants, and, fortunately, the patient rallied and did not die. The only death we had in our series was in a favorable case from the constitutional standpoint. On the seventh day following the injection of malaria he developed a chill with a temperature of 104°. This temperature did not drop as one usually expects, but continued between 103 and 104 degrees. The patient became unconscious and died within three days. We were unable to obtain a postmortem, but in all probability this patient died from the rare complication where the malaria organism forms multiple thrombi in the smaller cerebral blood vessels and in that way produced a picture of stupor and hyperpyrexia.

DR. F. R. WRIGHT: That is only about 10 per cent of the estimate of venereal disease ten years ago. In 1896 Professor Taylor of New York wrote a book on venereal diseases in which he estimated about 5,000,000 people in this country had syphilis, or about 1 person out of every 15.

Dr. S. E. SWEITZER (Minneapolis): We have had a small series of patients treated with malaria—sixty or more. We have used it now for about six years and our results have been about the same as the results reported by others. There have been about 30 per cent remissions, that is, placing the patients into occupations or their previous occupations; 35 per cent were benefited and about 35 per cent did not get any benefit. In checking them over, I think the results are in proportion to the degree of deterioration. If we get them early we get better results. There are some things one should do before giving malaria. In the first place the patient should be put into as good condition as possible. I think out of our 60 cases there have been 4 or 5 deaths. First, give them quinin and if they react to quinin do not give them malaria. Then we give them about 8 or 10 chills, but if the patient is not getting along well we interrupt after giving 4 or 5 chills; it is better to interrupt and have a live patient.

Another question is, why do we have paresis? Almost all of it has been somebody's fault. The patient doesn't know, or some doctor has not done his duty by the patient. If these patients are given intensive treatment over a period of three years or more almost none of them will develop paresis, but they often get treatment for a few months or a year and then stop.

Then the use of malaria in cases other than paresis, such as Wassermann fast cases and tabetics. In Vienna they are treating all syphilitics that show signs in the spinal fluid with malaria and they think that prevents neurosyphilis. I think this is a big advance in the treatment of syphilis.

Dr. HAMMES: Have we any definite means by which we can determine when the syphilitic is cured, aside from again re-infecting him in order to determine whether he develops another chancre?

Dr. SWEITZER: About 97 per cent of them will not develop nervous syphilis if you can give them treatment over at least three years. Almost invariably the patients we get with nervous involvement have had a few months, often not a year, of treatment. But if you give them at least three years of intensive treatment and then check the spinal fluid, I think you will find that neurosyphilis will practically disappear.

Dr. C. N. SPRATT (Minneapolis): I would like to ask two questions: first, how do you give these patients malaria? In 1901, when I was House Officer in Johns Hopkins Hospital, malaria was common; we had a malaria patient in one bed, a typhoid in the next, and a pneumonia in the next; the windows were unscreened, so there was opportunity for getting malaria. Where do you now get the malaria organisms, especially in Minnesota, to give to these patients?

Second, I wonder if anything has been done along this line with foreign protein, or low or high frequency current, and diathermy.

Dr. RUHBERG (in closing): I wish to thank the gentlemen for their very kind discussion of my paper. I did not include any of the cases of frank paresis in this paper for the reason that it is practically conceded the world over that malaria at present is the best treatment for paresis and it would be merely a repetition. I included only those patients in which one

could not make a clinical diagnosis of paresis, but who are in danger of later developing paresis or tabes. Personally, I feel that a person with negative spinal fluid, who has had syphilis, has a very good chance of not developing a parenchymatous neurosyphilis. I would not be willing to state that such a person who has a negative spinal fluid will never develop neurosyphilis.

If we are going to do the right thing by our patients it is necessary that we discover the presence of a neurosyphilis early and treat it until all serological signs disappear. In the severe cases, such as described by Moore in his Class 3, or pre-paretic type, it will be found that malaria is often needed to bring about this result. We have all had experience in treating late cases of paresis in which the patient may have been saved and a negative spinal fluid finally obtained, but so much parenchymatous destruction had taken place that the treatment merely improved the patient to the level of a high-grade imbecile, or placed him in the feeble-minded class, and as a result has caused great distress to the family in handling and taking care of him. In these cases the treatment certainly could not be classed as successful, and in many cases it would have been better not to have given malaria at all.

In answer to Dr. Spratt's question, we draw 10 c.c. of blood from the vein, and treat it with citrate to prevent coagulation, and then keep it warm until we are ready to re-inoculate. Four c.c. of this citrated blood is given intravenously, and as a rule would begin to cause a rise in temperature in 7 to 10 days. I purposely did not mention typhoid in the treatment of paresis, but include that in the reasonable treatment that could be given before malaria. There is no question but that typhoid is safer and is very valuable. Some claim that it is as good as malaria. However, it has not had the world-wide recognition that malaria has in obtaining the lasting and satisfactory remissions. Fever may be the major factor in the treatment by malaria, and diathermy is being used in an experimental way, and the few reports are enthusiastic.

Dr. Hammes' estimate that 20 per cent of these patients die of malaria is rather high, I believe. The usual statistics I have read give the mortality as around 10 per cent, and it must be remembered that these cases include patients with frank clinical paresis who have already deteriorated to a more or less extent, and are for the most part confined to the asylums. In well selected pre-paretic or asymptomatic cases showing the paretic formula, I believe malaria would show a very marked decrease in mortality. For those cases in which malaria is objected to on account of high blood-pressure, vascular conditions, kidney trouble, etc., typhoid vaccine would be a better choice of treatment.

Dr. A. N. COLLINS (Duluth) reported the following case:

The case I wish to present is rare in my experience.

This man first came under the observation of Dr. S. H. Boyer, who referred the patient to me for surgical treatment. The man was forty years of age and of Swedish descent. He complained of

1. Loss of appetite.
2. Pain in the pit of the stomach, at first right after taking food and later constant.
3. Vomiting, which he stated came with the pain or soon after the pain started.
4. Loss of weight—about 15 pounds.
5. Weakness.

The stomach content (33 c.c.) contained a small amount of mucus and much undigested material; free HCl, 0; total acid 8.20. At the second examination it was about the same. On January 22, 18 hours after taking food, only about 5 c.c. were recovered, which consisted of gelatinous food particles. His weight on January 16th was 116 pounds; on January 21st was 121 pounds. X-ray examination showed 6-hour residue and 20 hours afterward there was still some barium in the stomach; the bulk of the meal was in the large intestine and the tail of the meal in the transverse colon.

The condition was regarded as early cancerous obstruction of the pylorus and was referred to me for exploration. A note was made by the clinician that early cancer of the pylorus was probable.

On exploration I found a tumor which was not nodular. I called the attention of my assistant to the fact that one could press the finger down into what appeared to be a depression. It seemed that instead of cancer we had a deep indurated ulcer. There were several glands near the pylorus which were round and not nodular or hard. There was no nodular involvement of the liver. There was a shower of stippling over the pyloric area. I did a resection by the posterior Polya method. The pathologist reported that there was an abscess in the wall. This specimen shows a cavity which is a submucous abscess; it contained about one-half dram of pus. (Specimen shown.)

DISCUSSION

DR. ARNOLD SCHWYZER: This is an unusual case. I have never seen one in my own work, but in the literature up to a few years ago I know there were some over two hundred cases on record. The abscess is between the submucosa and the muscularis and may go somewhat into the layers of the muscular coat. Most of the cases, however, which I have in my memory were treated by drainage and walling off. That a resection could be done in Dr. Collins' case was quite a fortunate thing. There were a good number of deaths after draining operations. Resection, when it can be done cleanly, in other words, when the process is not too far spread, is surely preferable.

DR. A. E. BENJAMIN (Minneapolis): I would like to ask Dr. Collins if microscopic examinations were made to see if a diverticulum is present. It is possible to have a diverticulum from the stomach and then an infection and abscess, the opening having closed up.

DR. COLLINS: There was no malignancy and it does not penetrate the wall exteriorly. There was only a slight suggestion of a peptic ulcer of the mucosa about $\frac{1}{4}$ of an inch in diameter which is not open at the present time. It is possible that there was a small peptic ulcer as the original cause, and that it healed over superficially.

DR. ARNOLD SCHWYZER: I think in the literature hardly any case is known to have been due to diverticula. It was always thought that the condition was due to either a hematogenous infection or perhaps in some cases to a small puncturing trauma.

DR. ARNOLD SCHWYZER (St. Paul) reported the following case:

About a month ago I was asked to see a case with another surgeon—a large tumor of the abdomen which had the contour and relations to the cervix of a fibroid. The patient was a young woman twenty-two years of age. She claimed she had menstruated regularly and that the tumor would at times be very large and then again would practically disappear. When I examined her this tumor reached to the middle between the symphysis and filled the upper part of the pelvis tightly. The cervix was hard and virginal. The supravaginal portion of the cervix ran far backward and upward. From the cervix one could feel a gradual and unbroken transition to the tumor. This was felt as well on both sides as in front. But the tumor fluctuated, perhaps somewhat tensely, but definitely. Could it be perhaps a cystic tumor of the ovary which was plastered onto the corpus uteri by some inflammatory process? There was no trace of pain. Could it be a cystic tumor of the corpus uteri, a cystic degeneration of a fibroid? A hydro- or hemato-metra was excluded by the regular menstruation which was not to be questioned.

I was absent when the operation was performed, but the two surgeons who operated found a very perplexing and disquieting condition which appeared to be pregnancy. The tumor was the uterus; it was soft and fluctuating, of a bluish hue, and the adnexa started off symmetrically on either side. When a carefully inserted needle yielded clear fluid, the diagnosis seemed to be definitely forbidding an aggressive procedure and the abdomen was closed. "Primum non nocere" is a valuable principle. No particular harm was done and no bridges were burnt. But a lingering doubt had remained in the surgeon's mind, I am sure, for when on my return I definitely rejected the diagnosis of pregnancy, he readily assented to the proposition to re-operate and to enucleate the tumor, which must be a hydropically degenerated fibroid. While the uterus was the size of the five months' pregnancy, the external genitalia were entirely normal, the cervix small, hard and virginal. The change in size of the tumor was so far unexplainable. Was it an error of observation on the part of the patient? Inquiry in the laboratory as to the amount of albumin found in the withdrawn fluid showed that a large amount of albumin had been noticed. Amniotic fluid contains only an insignificant trace—hardly any. Thus the diagnosis "hydropic degeneration of a fibroid" was confirmed.

This morning we re-operated. The tumor was about the size it had been judged to be at my first examination, but both surgeons who had performed the first operation at once declared that at the first operation the tumor had reached much farther up. It was plainly fluctuating. The color was normal for a fibroid uterus; there was no bluish hue. We shall try to

explain this difference later. The adnexa left the uterus on each side at the same level, but this level was too low for a pregnant uterus. The tubes emerged at the junction of lower and middle thirds, and abnormally far in front. The fibroid was therefore in the upper posterior wall of the uterus, though the whole was apparently a uniformly enlarged womb. In this area also the fluctuation was the most outspoken. All this became only definitely clear after the mass had been delivered from the pelvis, which was, however, not a simple matter. The tumor was partly in the pelvis and filled it so completely that it was impossible to insert the fingers far enough into the pelvis to bring the tumor up. With the help of probangs on both adnexa it was gradually worked out of the small pelvis. The fluctuation made us avoid toothed Museux forceps or a corkscrew tractor. After bringing the uterus into the wound a transverse incision was made over the upper posterior surface and the fibroid was shelled out. Twice during this process the finger slipped into a cavity and clear fluid escaped. After the enucleation was completed the mass was still about the size of a grapefruit. It was a practically necrotic and very hydropic intramural fibroid with large irregular cavities of disintegration. From the torn area the inner parts of the tumor bulged out as a flabby, white, bloodless and exceedingly soft material.

What had puzzled the surgeons before was the fact that the tumor, according to the definite statement of the patient, had become very large and prominent and then again had practically disappeared. On the two occasions when I had seen her, the tumor was about the same size. At the operation this morning it struck me that possibly or rather very probably this difference was to be explained by a change of the position of the mass. When the bladder and the ampulla recti were perhaps abnormally full, the tumor was forced up into the large pelvis and on account of its size would stay there. It then bulged greatly. When these viscera were empty the abdominal pressure could sometimes, under unfavorable conditions, push it back into the small pelvis and thus the tumor seemed to have disappeared almost completely. The snugness with which it fitted into the pelvis rim made this explanation probable. The fibroid fitted like a cork in a bottle. This snugness in fitting into the pelvic rim seems to me also to explain possibly the difference (as emphatically stated) in the appearance of the color of the uterus at the two operations, inasmuch as perhaps the marked stretching of the uterine vessels when the tumor was high in the abdomen would cause some degree of cyanosis.

The drawback of having to undergo two operations was compensated by having the pelvic organs preserved intact. Not removing any of the exuberant musculature of the tumor bed and broadly uniting the surface with four layers of continuous suture left a somewhat unsightly shape for the uterus, but gave us good assurance against rupture in a possible future pregnancy. Furthermore, this deformity, due to the bulky capsule of the tumor, will in all probability cor-

rect itself gradually, and at any rate has no importance. The uterine cavity had not been entered.

DISCUSSION

DR. W. H. CONDET (Minneapolis): The history of Dr. Schwyzer's report of a patient is of unusual interest to me because it almost parallels a patient I operated upon at the University Hospital several years ago, the exception being that this patient's tumor was the size of a full term pregnancy.

It was at the time when Dr. Beebe was with us, and he happened to be in the operating room at the time. After opening the abdomen and exposing the tumor, his remark was, "Young man, I have seen better men than you obliged to leave the state for taking out a uterus like that." The serosa was bluish and injected. There was fluid underneath, and was a picture of a full term pregnant uterus. On palpation one could almost feel elbows, knees and even the head.

I ruled out pregnancy practically the same way Dr. Schwyzer made his diagnosis in his case—that is by palpating the cervix from the abdominal cavity, finding a firm, hard, contracted cervix; a condition impossible in pregnancy, especially full term.

The tumor was removed. On opening, a large amount of fluid was evacuated out of a thin-walled cavity. On further incision of the tumor, another cavity with fluid was found. In the wall of this cavity were several hard myomata, which were the "elbows" and "knees" supposedly felt. On further resection, a large, hard myoma the size of an infant's head was found.

This patient was much older than Dr. Schwyzer's patient, one point which assisted in ruling out pregnancy, although she was not absolutely beyond the age of conception.

DR. C. B. WRIGHT (Minneapolis) reported the following case of Undulant Fever:

The patient was a male, aged 47, single. His mother was living and well; father died of Bright's disease; and one brother and one sister were living and well. He had been in the dairy business since he was a boy, except from 1912 to 1919, when he was in the elevator business.

He had always been a fleshy man. In 1908 he first had rheumatic fever and then had it every year for 5 years. The attacks lasted about 5 weeks. Temperature would go up to 103°. He would be lame and could not walk for a long time after attacks and his feet pained a great deal. In 1920 he had an attack of severe pain in his back and right side which the doctor said was due to liver trouble.

He was first seen early in 1927. He was having a lot of dull aching pain in his left ear, took cold easily, and had a raw throat and used to have a lot of phlegm back of his tongue. He stated that he had never had pneumonia nor pleurisy nor typhoid. He complained of more or less indefinite trouble with his stomach; vomited easily in the presence of bad odors or if he sees something unpleasant. The most he ever weighed was 245 pounds, and his weight varied from 220 to 200 for the last four or five years. The

last four years he had a tendency to drowsiness and could go to sleep anywhere. He said he was a small eater, but ate everything. His blood pressure had varied from 143/75 to 110/70. He chewed tobacco and smoked, but used no liquor.

On examination the patient was found to be rather fleshy, with pendulous abdomen. The reflexes were normal; no tremor, no eye signs. The throat and teeth were normal. The neck was large, with slight enlargement of the thyroid. Lungs and heart were normal. Liver and spleen were not palpable. The rectal examination was negative.

On July 5, 1927, he came back, having an attack of pain in the right side under his ribs; also some pain on the left side. He was dizzy, feverish and nauseated. He had never been jaundiced, and had no diarrhea. He was tender over the gallbladder area but there was no tenderness over the back. The upper right rectus muscle was somewhat rigid. This attack lasted only a short time. He also complained of numbness in his fingers and said that at times his feet had swelled.

On July 27, 1930, he was seen by Dr. Adam Smith during my absence from the city, when he complained of severe pain in the left hip radiating almost to the knee. Dr. Smith felt it was neuritis. He also complained of back pains.

On February 6, 1931, he came in again complaining of general bad feelings, no pep, drowsiness, stating that he thought he had been feverish for some time. In fact, he had been taking his temperature for two or three weeks and found he had some fever every day. On examination his temperature was found to be 101°. The throat was not inflamed and there was no evidence of a cold. The lungs and heart were negative. There was no rash, no glandular enlargement, and no edema. Abdominal examination was negative. The blood Wassermann was negative.

There being no obvious reason for the fever, I had some blood sent to the University and the report came back positive agglutination in a dilution of 1:320 for bacillus abortus. Typhoid and paratyphoid were negative.

He came back on February 10, 1931. His temperature was 100.4° about 4 p. m. Blood count—Hb. 86 per cent; r.b.c. 4,140,000; w.b.c. 8,050. Differential: polys. 44 per cent; lympho. 53 per cent; monocytes 1 per cent; basophiles 2 per cent; eosin. 0.

On going back over his records, he says that in 1900 he took care of a herd of fifty cows and that about one-third of the herd aborted. In 1901 they raised only three calves from the fifty. During the last four years there had been abortion every year in his herd. Last winter there were 2 abortions in 5 cows. The herd was tested for tuberculosis but not for undulant fever. He thinks he has had the infection for at least four years, and has had the same trouble at intervals since he was a boy. He also claims that the man working with him on the farm complains of the same symptoms. Because of the continuous contact with cows, it is difficult to say how long this disease has been present. Another interesting feature of this case

is the history of attacks of inflammation which suggests gallbladder disease.

Dr. Reuben Johnson recently reported, at the Abbott Hospital Staff meeting, a case where no agglutination was found but the organism was isolated from the urine and definitely proven to be *B. abortus*. He also reported that Dr. Amoss, of Duke University, who had a case of undulant fever with gallbladder trouble operated upon and found the bacillus in the gallbladder. The organism has also been isolated in stools. Cases have been reported where agglutination never was present and the only way to make a definite diagnosis was by isolation from the stools or urine. In Oxford Medicine there is a very excellent account of this disease, with a bibliography down to July, 1930.

DISCUSSION

DR. HAMMES: What is the treatment of this condition?

DR. COLLINS: I would like to ask two questions: first, how does this organism affect experimental animals; and, second, what is the mode of transmission—in the secretions, food, or what?

DR. WRIGHT: There apparently is no particular treatment for this mild type of infection. Gradually it burns itself out in varying lengths of time. The length of time an individual may harbor this infection is not definitely known. Cases have been reported lasting as long as four years.

In reply to Dr. Collins, if this organism is injected it produces a bacteremia. This undoubtedly also happens if animals are fed infected material. The mode of transmission in animals is generally thought to be through swallowing infected material. It may be directly transmitted from one animal to another through the blood stream. This, of course, does not happen to any extent. Workers in slaughter houses have been directly infected through abrasions. The mode of infection in this part of the country, in human beings, is considered to be by mouth and largely through the drinking of milk.

The meeting adjourned.

R. T. LAVAKE, M.D.,
Secretary.

THERAPEUTIC POSSIBILITIES OF GASTRIC MUCIN

The gastric mucus aids in protecting the cells from digestive or "erosive" damage by the acid that is poured into the lumen of the stomach when the gastric glands are active. Undue secretion of mucus in the stomach is responsible for lowering of the gastric acidity, just as proteins tend to "bind" free hydrochloric acid. The actual capacity of mucus to produce such an effect has been verified. Mucin prepared from hogs' stomachs was more potent than equivalent amounts of common protein foods such as gelatin, meat and egg white. In a few human patients with definite histories of ulcer and roentgenographic evidence of peptic ulcer the addition of powdered mucin to the ordinary bland diet brought about relief from subjective symptoms. (Jour. A. M. A., February 28, 1931, p. 693.)

PROCEEDINGS OF THE MINNEAPOLIS SURGICAL SOCIETY

Meeting of February 5, 1931

The Annual Banquet of the Minneapolis Surgical Society was held at the Nicollet Hotel on the evening of February 5. The President, Dr. A. T. Mann, presided and introduced the guest of honor and speaker, Dr. Clay Ray Murray, Associate Professor of Surgery at Columbia University. The title of Dr. Murray's address was "Delay and Non-union of Fractures." There were 36 members and 44 guests present.

During Dr. Murray's visit in the city he gave a talk before the Hennepin County Medical Society on "The Proper Use of Physiotherapy in the Treatment of Fractures," and also presented his "talkie" on "The Treatment of Angle Fractures."

On Thursday morning Dr. Murray conducted a Clinic on Fractures at the General Hospital, which was of unusual importance in view of the fact that Dr. Murray discussed the actual treatment of the cases at hand. On Thursday afternoon he addressed the medical students of the University in the Anatomy Amphitheater, speaking on the "Modern Conception of Bone Formation in the Adult and its Bearing on the Clinical Treatment of Fractures." These meetings were open to the general profession, and were unusually well attended, and the talks received with much enthusiasm.

The formal banquet meeting at the Nicollet Hotel was for the members of the Surgical Society and their invited guests. In addition to the paper, Dr. Murray told of their work, both experimental and clinical, at the Presbyterian Hospital in New York City, and, in closing, extended a cordial invitation to any of the physicians who came to or near New York City to come to the hospital and observe the work that is being done there.

H. O. MCPHEETERS, M.D., *Secretary.*

PARIOGEN TABLETS

There has grown up, during the past four or five years, a huge business in the sale of antiseptics and germicides, real or alleged, that are frankly purchased, if not obviously sold, for contraceptive purposes. The term contraceptive is not used in the advertisements; "feminine hygiene" takes its place. "Pariogen Tablets," marketed by American Drug and Chemical Company, of Minneapolis, have been advertised as the "new mode of personal hygiene." An advertisement stated "Pariogen Tablets may be carried anywhere in a purse, making hygienic measures possible almost anywhere, no other accessories or water being required." The advertising has stressed that the tablets are non-poisonous, but do not declare the composition of the tablets. Some six years ago a reading notice appeared in a medical journal from which it appears that the tablets are essentially tablets of chloramine, U.S.P. By selling these under a proprietary name as a nostrum of essentially secret composition, the company is able to get a price that is out of all proportion to the value of its product. (Jour. A. M. A., February 7, 1931, p. 458.)

PROCEEDINGS OF THE MINNEAPOLIS CLINICAL CLUB

Meeting of January 8, 1931

The regular monthly meeting of the Minneapolis Clinical Club was held in the lounge of the Hennepin County Medical Society on Thursday evening, January 8, 1931. The meeting was called to order at 7 o'clock by the President, Dr. Moses Barron. There were 25 members and one visitor present.

Minutes of the December meeting were read and approved.

The President called the attention of the members to the new magazine rack in the Library room which had been presented by the Clinical Club to the Hennepin County Medical Society.

The scientific program was as follows:

DR. WALTER E. CAMP reported two cases of Melanotic Tumors of the Eye.

I wish to present two cases of intraocular malignant melanomata in which rather complete pathological examinations were made.

(a) The first case is that of a married woman, aged 54 years, who came for examination because of intermittent redness and pain in her right eye which had been blind for some years. There was no history of injury or serious illness. Examination showed conjunctival and ciliary injection; the anterior chamber was completely obliterated; the iris was atrophic and pushed forward against the cornea. The pupil was eccentric, irregular and fixed. The lens was cataractous, preventing examination of the fundus. The eyeball was stony hard, and tension with the tonometer was 60 mm. Hg. as compared to 20 mm. Hg. in the left eye. There was no light perception present. Transillumination of the globe showed the outer half to be opaque.

The general physical examination showed numerous small, hard, bluish, subcutaneous tumors on the scalp, chest, abdomen, axillæ and groins. The liver was not enlarged. There was no weight loss, and no cough. The patient stated that the subcutaneous nodules came about two months previous to the time of examination.

A diagnosis of malignant intraocular melanoma was made, and enucleation done. A biopsy also was made from one of the subcutaneous tumors.

The eyeball on section showed a large melanotic tumor involving about three-fourths of the choroid and extending into the ciliary body. Perforation through the sclera had occurred at the equator along the vortex veins. Parts of the tumor were deeply pigmented; others necrotic and showing cholesterol crystals.

There was no local recurrence of the tumor after enucleation, but the metastatic tumors increased in size and the liver became enlarged. Death occurred fifteen months after enucleation. Autopsy showed generalized melanomatosis of all organs and visceral surfaces.

(b) The second case is one that I saw some years ago with Dr. Murray at the University Hospital. The patient was a young farmer nineteen years old who came complaining of loss of vision in the left eye. His

parents noticed a change of color in the iris of this eye almost two years before coming to the hospital.

Examination showed a mild conjunctival and ciliary injection. The pupil was dilated, the anterior chamber shallow. The iris showed areas of deep pigmentation scattered from the periphery to the pupillary margin. These areas were not raised above the surface. The lens was clear. The fundus showed glaucomatous cupping of the optic disc and optic atrophy.

Enucleation was done and the whole eyeball sectioned serially. Microscopically the entire circumference of the iris was found to be infiltrated with a diffusely pigmented tumor. Graphic reconstruction showed the tumor as outlined in the slide. (Slide shown.) The tumor was composed of round and spindle cells, many of which were deeply pigmented. The tumor cells were most numerous at the periphery of the iris, and extended into the ciliary body and onto the posterior surface of the cornea. Some of the tumor cells were found extending out along the anterior ciliary veins. Aside from the glaucomatous cupping of the disc and optic nerve atrophy, the remainder of the eyeball was normal.

Annular malignant melanoma of the iris or ciliary body is exceedingly rare. They are slow growing and may give late visceral metastases similar to choroidal melanomata.

DISCUSSION

DR. ERLING HANSEN: These two cases are very interesting and demonstrate, at least to some extent, the difficulty one finds in making a diagnosis. In the first case if it had not been for the fact that metastases were found throughout the skin in places where nodules could be taken out and sectioned, the diagnosis would have been rather difficult. The fact that the lens in many of these becomes sclerosed and cataractous makes it difficult or impossible to see the fundus, so that the presence of tumors cannot be diagnosed.

In the old division in stages of development of tumors, particularly tumors of the choroid of which we have the greater number in the sarcomatous group, the first stage—the quiescent development of the tumor—was missed as the patient is seldom seen in this stage. Most patients come to the oculist because of some disturbance of vision or pain, and unless the tumor is in the macular area there is very little early disturbance of vision. Then the tension in the eyeball increases and brings on the second stage, in which probably most of the patients are seen. The third stage is the breaking down of the tumor; and the fourth stage, the invasion of other tissues.

Unfortunately, one of the sad things about these tumors is that they metastasize very early, especially in the liver, and even though the eye is enucleated at a very early stage, the metastasis has already taken place.

Another thing causing difficulty in diagnosis is in extensive detachment of the retina. The evidence of a solid tumor behind the retina is suspected and it can often be demonstrated in the anterior half of the eye by transillumination through the sclera. If the tumor mass is more posteriorly situated we have more difficulty.

I was particularly glad to see the reconstructed section of this annular tumor, which is rather a rare condition.

DR. KENNETH PHELPS: There is only one thing I might add, and that is in my experience I have known of only one patient who had his eye enucleated for a melanoma and did not have a metastasis. The operation was done about 30 years ago and the patient still lives.

DR. MOSES BARRON: I would like to ask Dr. Camp why the eye was enucleated in the first case after there were obvious metastases throughout the body?

DR. CAMP: That was done for the relief of pain and also to confirm the diagnosis. I might add that the last case, the one I saw with Dr. Murray, was reported in full by him in the *American Journal of Ophthalmology*.

DR. J. S. MCCARTNEY: The whole subject of melanoma is a very interesting field in tumor diagnosis because of the great variety of histologic pictures one may see in connection with these tumors, whether they are in the eye, or skin, or intestinal tract. One can get almost any sort of a microscopic appearance and if one reviews a series of these he sees why there is so much disagreement in the naming of a melanoma; why one person wants to call them melanosisarcoma and another melanocarcinoma. You may see everything from a spindle cell to round cell, or alveolar sarcoma, and even to things that you want to call carcinoma. Occasionally you see one which you want to call giant-cell sarcoma. I saw such a one not very long ago which was in the small intestine as a primary tumor about 10 or 12 inches from the ileocecal valve. It was 10 by 2 cm. and ulcerated but not an annular tumor and, in spite of its size, did not produce obstruction. The patient was operated for appendicitis, which she had.

Several years ago a patient came to the University Hospital with an enlarged liver. There were several diagnoses made in the hospital and when she died the enlarged liver was found to be the site of metastatic melanoma. Then they got to looking around and found that she had had an eye removed. In looking up her history it was found that she had been in the hospital about five years before when the eye was removed for malignant melanoma.

Another case I recall, which was reported by Dr. Morrison, of a patient at the General Hospital considered as some functional neurosis. It was found that she had a melanoma in the brain and another in the small intestine and they could not determine which was the primary tumor.

DR. BARRON: The case which Dr. McCartney mentions was very interesting. I remember it very well because I was house officer at the hospital at that time. A number of different diagnoses were made on the case. At autopsy an enormous liver was found containing large black tumors. It was then decided to look up the original record of the enucleated eye which had been removed by Dr. Todd about six years previous. This was found to contain melanosisarcoma.

DR. H. L. ULRICH: They have learned a lesson over

at the hospital now. They have had one similar case since in which the condition was diagnosed.

DR. T. A. PEPPARD read a case report for Differential Diagnosis: Hemoptysis with Gradual Development of Pulmonary Lesions.

The patient was a female, aged forty-one, office worker, who was first seen in September, 1930. Her complaints at that time related entirely to the gastrointestinal tract. She stated that she had had a "summer cold" for three months during the past summer, expectorating some mucous material in the morning. She had never expectorated any blood. She became slightly dyspneic when excited. She complained of some transient pains over the anterior chest.

Her family history is quite unimportant. There was no exposure to tuberculosis at any time. She stated she had had tonsillitis and had been observed by a rhinologist who had suspected the possibility of some sinus trouble.

The patient was well-developed, and moderately well-nourished, although thirteen pounds under her best previous weight. Pulse rate was between 80 and 90; temperature between 99° and 100°. There were some crowned and filled teeth noted, although her dentist reported that all the teeth were vital. The tonsils are not greatly enlarged, but, because of the previous history of tonsillitis and also because of the presence of a number of cervical slightly enlarged lymph nodes, I considered that the tonsils might be a focus of infection. The thyroid was normal in size. The heart was quite normal; blood pressure 110/80. There were no physical signs indicative of lung disease. There was no enlargement of any of the abdominal organs, although the patient was diffusely tender to palpation over the abdomen. No pelvic disease or abnormality was found.

Examinations of blood, urine, stools, and stomach contents were quite normal. Roentgen examination of the gastrointestinal tract showed no evidence of any organic disease. The skin tuberculin test was definitely positive, and stereoscopic plates of the chest showed only calcified lymph nodes at the left hilum. There was no evidence of tuberculosis or other parenchymal pathology.

On November 13, without other symptoms, the patient expectorated about one tablespoonful of blood, and from that time until the present (January 8, 1931) she has raised some material containing some amounts of blood almost daily. Since then numerous specimens of sputum have been examined. These all have been small in amount, the 24-hour quantity not being over 30 c.c. at any time. The sputum has consisted of grayish, greenish purulent material, mixed with red blood in streaks, and with some clots. No tubercle bacilli have been found at any time, but there have been many other organisms—staphylococci, diplococci, and streptococci. There was no characteristic odor to the sputum.

Physical examination November 20th showed a slight impairment of resonance over the lower half of the left chest posteriorly, with a slight change in breath tones, they being broncho-vesicular in character. Ster-

eoscopic X-ray films were made on this date. Calcified glands in the region of the left hilum were again shown as before. There was no evidence of parenchymal pathology in the upper portions of either lung. There was slight circumscribed density in the lower left lobe.

For a month's time the patient continued to have sputum with blood, as mentioned before, but for the past three weeks the purulent character has disappeared. The physical signs in the lower left chest have cleared up. The patient has gained nine pounds in weight, and feels quite well.

The X-ray examination of the chest was repeated January 3rd, 1931, and these plates show now a definite resolution of the localized infiltration, previously shown. In the opinion of the roentgenologist there is no evidence of tuberculosis.

I do not believe that this patient has pulmonary tuberculosis. There is no evidence at this time that she has a primary new growth of the lung. I have thought of the condition as being one of those non-specific pulmonary infections similar to those described under various titles by Reisman, Miller, Hamman, and Wolman. I have had several cases similar to this, but I do not recall any in which there has been hemoptysis, although some of these other observers have recorded this symptom. They are most often associated with, or dependent upon, chronic infections of the upper air passages, particularly the sinuses and tonsils, and in the present case I have advised that the patient have a tonsillectomy.

DISCUSSION

DR. F. W. WITTICH: I would like to ask Dr. Peppard more in detail about the sputum. Aside from the X-ray, which is sometimes misleading in these basal lesions, the positive cutaneous test could be followed up with the subcutaneous test, starting with $\frac{1}{2}$ mg. of tuberculin, to see how much of a constitutional reaction resulted, and if allergic to comparatively small doses. Then I think a 24-hour specimen of the sputum would have given us leading information. Pottinger has long ago pointed out the sediment volume determination and albumin content of the sputum as being valuable in differentiating pulmonary tuberculosis from simple catarrhal and non-tuberculous abscess.

DR. PEPPARD: All of the specimens that I received had blood in them. The quantity was not large at any time. I should estimate that she probably did not raise at any time over a tablespoonful in 24 hours.

DR. WITTICH: Even so, I think that searching carefully for elastic fibers might give us some information. In their absence, of course, I would feel there was less chance of pulmonary suppuration. The fact that the apices are entirely clear and that the lesion is basal is evidence against a tuberculous lesion, although there is some evidence of childhood tuberculosis on the left side as shown by the calcified hilum nodule. I think perhaps one would consider malignancy until he had seen the X-ray. It certainly is a favorite site for primary carcinoma, but the shadow does not have that appearance and the patient is gaining in weight. Then there is a group of cases that we are seeing right now with ordinary colds, with infected tonsils, sinuses, or some

other focus of infection where there is a patch of lower lobe consolidation with or without bloody sputum. There are at times small areas over which a shower of very fine crepitant râles are heard and may persist for weeks. Occasionally there develops in these areas of unresolved bronchopneumonia a small abscess which clears up in six to eight weeks, showing no more of a shadow than this and subsequently clearing up entirely.

The evidence presented, I think, points toward a small abscess which is resolving and one arising from some other source. I would diagnose this case of Dr. Peppard's as non-tuberculous, inflammatory in character, resulting in a small pulmonary suppuration, probably metastatic; and if it does not clear up in a reasonable length of time one might suspect malignancy.

DR. H. L. ULRICH: I think Dr. Wittich has covered the field very well. I might suggest a localized bronchiectasis, but that is the only thing which I could add to this discussion.

DR. R. G. ALLISON: I have not seen these plates before, and do not think there is much difference in the three; if so, the one of November possibly shows a little more of the inflammatory condition. Clinically it might be a bronchopneumonia, but from the history I think she has a small abscess there. Certainly there is nothing to suggest a primary new growth. It would be unusual for it to be tuberculosis. I think one can rule out bronchiectasis, tuberculosis and tumor.

I think most likely it is a metastatic abscess which may flare up again but which in the end will probably undergo complete resolution.

DR. J. C. MICHAEL gave a lantern slide talk on "Schematic Orientation for Pathogenesis, Localization and Classification in Neuro-Psychiatry."

DISCUSSION

DR. H. B. HANNAH: As far as the classification is concerned, this was very well done by Dr. Michael. There is one thing I might add and that is I am always hoping the time will come when we shall know more about the physiology involved in this question and not so much about descriptive psychiatry.

The meeting adjourned.

H. BRIGHT DORNBELASER, M.D.,
Secretary.

LIMITATIONS OF BACTERIOPHAGE THERAPY

Recent investigations suggest that future therapy with bacteriophage preparations must be limited to certain definite anatomic types of infection. The deductions drawn are that no therapeutic effects whatever are predictable for bacteriophage except under conditions in which local extrabacterial bacteriophage concentration can be raised and maintained. From this it appears that bacteriophage therapy would be a predictable disappointment in erysipelas, furunculosis, pneumonia, pyelitis, cellulitis and bacteremia, and in cystitis except by concentrated irrigation. The use of this therapy would thus be limited to such closed organs as the intestine and to well encapsulated pus cavities. (JOUR. A. M. A., February 28, 1931, p. 693.)

PROGRESS

Abstracts to be submitted to Section Supervisors.

Members are urged to abstract valuable articles which they run across in their reading and send the abstracts to the physicians in charge of the respective sections. In order to avoid duplication it would be well to communicate with one of the section supervisors before the article is abstracted.

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EYE, EAR, NOSE AND THROAT

THE OPERATIVE TREATMENT OF GLAUCOMA: Professor Doctor Emil de Grosz, Budapest, 1930. (Note: This article came as a pamphlet and has not been published, to the reviewer's knowledge, in a periodical.)

VON GRAEFE TERMINOLOGY

- I. Inflammatory (congestive glaucoma)
 - a. prodromal stage
 - b. acute
 - c. chronic
 - d. absolute
 - e. stage of degeneration
- II. Simple glaucoma
- III. Juvenile glaucoma

In simple glaucoma the leading signs are missing or inconspicuous. Correct diagnosis can only be made by objective findings such as excavation of the optic disc

and shrinking of the visual fields. The degree of recovery depends essentially on the length of time the eye has already been affected.

In the Budapest clinic the frequency of the different types was as follows: chronic congestive eyes 70 per cent, cases in the prodromal or acute stage 20 per cent, simple glaucoma about 10 per cent, and the juvenile type less than 1 per cent.

In the types of operative procedure used iridectomy has kept its important role, while trephining was employed in numerous cases at the beginning and cyclodialysis more frequently at the end of the period. With the trephine procedure favorable results were obtained in 83 per cent of the chronic congestive cases but in the absolute cases the results were much poorer. The incidence of late infection can be markedly reduced if the fistula is carefully covered with a flap.

In the cases in which cyclodialysis was used the tension was decreased in 78 per cent of the chronic congestive type. The results proved to be better with simple glaucoma but less favorable with absolute. Cyclodialysis has the advantage of low operative risk and may be repeated two to four times. If it is a failure it may be followed by trephining.

In cases of simple glaucoma sclero-iridectomies were usually performed, with favorable results due to reduced tension in 94 per cent; the eyesight remained unchanged in 92 per cent, became better in 5 per cent and worse in 3 per cent. The favorable results decreased to 76 per cent in the years following. These percentages were obtained only in those cases in which the tension was successfully reduced by pilocarpine.

Anterior sclerotomy was performed in the juvenile type and in those cases in which cataract extraction had been done through an iridectomy.

In conclusion, surgical intervention, supported by frequent use of pilocarpine, is so far the most effective means of relief for glaucoma. With regard to the adequacy of operations performed on different kinds of glaucoma, the following principles are observed at the Budapest University Eye Clinic:

Inflammatory glaucoma, prodromal and acute—iridectomy (Graefe)

Inflammatory glaucoma, chronic—cyclodialysis (Heine)

Glaucoma, simple—iridosclerotomy (Lagrange)

Glaucoma, juvenile—anterior sclerotomy (Wecker)

Glaucoma, stage of degeneration—enucleation (Arlt)

L. G. FLANAGAN.

MEDICINE

TUBERCULOSIS ABSTRACTS*

Adolescence is a period of strain. Youngsters who have, during the earlier years of childhood, been massively infected with tubercle bacilli are likely during the teen age period to develop the adult type of tuberculosis. It is during high school years that the destiny of many of these children is decided. This is reflected in the steep rise in the death rate curve during the late teens and early twenties. Walter L. Rathbun has,

since 1923, made a systematic search for early tuberculosis, regardless of symptoms, by means of the tuberculin test and the X-ray. He has recently completed the task of examining practically every high school pupil in Chautauqua County, New York; namely, 7,171 children. His experiences are recorded in a special publication, from which these abstracts are derived.

TUBERCULOSIS AMONG HIGH SCHOOL STUDENTS

Examinations of school children for early tuberculosis began in Chautauqua County, New York, in 1923 by sending to local clinic centers (a) pupils physically below par, (b) those who had symptoms referable to tuberculosis and (c) those who have been exposed to the disease. The results of the first year's effort were enlightening, but since facilities were limited, it was decided the next year to examine only the high school groups because these children leave school first. Each high school student was given a chest examination without reference to family history, height-weight ratio, or symptoms. The results justified the procedure as many cases of tuberculosis were found among those in whom it was least suspected and who were apparently perfectly healthy.

Of the students so examined, three groups were then X-rayed; (a) those with suggestive signs of pulmonary tuberculosis; (b) those in actual contact with a case of tuberculosis; (c) those with a history of previous or present symptoms referable to tuberculosis. All such children were transported to Newton Memorial Hospital, where they were X-rayed. This procedure continued during 1924 and 1925, when the plan was broadened by carrying the diagnostic work directly into the schools.

EXAMINATIONS MADE IN SCHOOLS

The Chautauqua County Tuberculosis Association furnished funds to purchase a portable apparatus and X-ray films which made it possible to do the work in the school buildings. Incidentally, while it is true that the portable X-ray machine has its shortcomings, it is capable when properly handled of revealing lesions of the childhood and the adult type. The few cases in which more detail is needed may be X-rayed with a high-powered machine. The utility of the portable apparatus is a distinct advantage, and having the examinations made in the school arouses interest among school people. Stereoscopic sets of pictures were made routinely.

In 1926, the mode of procedure was again modified. Students were taken from the study halls and X-rayed, and only those with definite or suspicious signs were given a physical examination. This speeded up the work and also increased the percentage of positive cases. The tuberculin test was not insisted upon as a routine measure at that time because public opinion was not favorable to its use, whereas X-ray examinations were heartily approved.

In 1927, the intracutaneous tuberculin test was introduced as the first procedure in diagnosis. A specially trained nurse made the test and read the reaction, thus saving valuable time of the physician. It was neces-

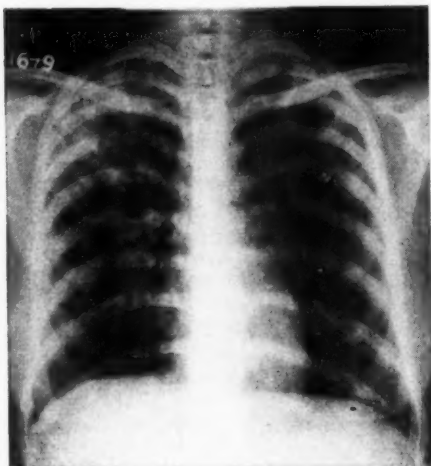
*Reprinted from *Tuberculosis Abstracts*, a review for physicians, issued monthly by the National Tuberculosis Association, April, 1931, Vol. IV, No. 4.

sary to secure the consent of parents to make the test; hence, the percentage tested was reduced to about 50 per cent. Positive reactors only were X-rayed.

INTIMATE CONTACT IMPORTANT FACTOR

These studies indicated that tuberculous disease of the lungs and tracheobronchial lymph nodes results from prolonged and intimate, rather than casual, ex-

	Number	Per cent
Negative to tuberculin test.....	570	7.9
Negative on X-ray.....	5,676	79.2
Children requiring observation.....	538	7.5
Childhood type tuberculosis.....	250	3.5
Suspect adult type tuberculosis.....	50	.7
Adult type tuberculosis.....	60	.84
Miscellaneous	27	.36
	7,171	100.



Mottling in right upper and upper part of lower lobe, cavities in right upper, scattered mottling throughout upper two-thirds of left upper lobe with cavity near apex. Calcified lymph node above sternal end of left third rib, indicating presence of childhood type lesion.

Girl, 15 years old, very active in scholastic, social, and athletic affairs. Denied symptoms until questioned closely. Diagnosis made during routine school X-ray examination.

posure to tubercle bacilli. Intimate exposure most commonly takes place in the home. It was found that the percentage of positive reactors was greater among children living in the city of Jamestown (44%) than among similar groups in the villages (25%) but that the incidence of tuberculous disease of the childhood type was about the same in rural and urban areas. Apparently, while casual contact (which is more common in cities) may be the starting point of an infection as revealed by the tuberculin test, it is incapable of causing demonstrable disease in most cases. Intimate contact with a sputum-positive case of pulmonary tuberculosis is the usual cause of the disease. In 54 per cent of the families of tuberculous children, a parent had either died of the disease or had pulmonary tuberculosis at the time. In 17 per cent of the families, there was a parent with suspicious signs of tuberculosis. In some cases, the "spreaders" were older siblings, in one, a nurse-maid, and in another, a boarder.

RESULTS OF STUDY

During the past seven years, 30,000 pupils, 7,171 of whom were of high school age, have been examined, with the following results:

Cases of childhood tuberculosis were 15 per cent higher for females than for males, while the morbidity for the adult type was 43 per cent higher among females than among males.

Many of the arrested cases continued school work but were given eight weeks' treatment in a high school health camp located on the grounds of the hospital. During the past two years, a high school has been conducted for students under treatment in the hospital. Local school authorities are well satisfied with the experiment. For ambulatory cases and some bed cases, school work is the most profitable kind of occupational therapy.

PROTECTING THE STUDENTS' HEALTH

The tendency in modern schools is to push the students to the limit of their capacities. Healthy children can stand the pace, but not those who are below par physically. Therefore, those with physical disabilities, real or potential, must be searched for and protected from overwork. Similarly, sports and competitive athletics must be curtailed for the physically handicapped. Rough handling and excitement are heavy drains on the body reserve and frequently precipitate a breakdown. School authorities in Chautauqua County coöperated admirably in protecting those who needed protection.

The public schools are logical centers for the dissemination of medical knowledge about tuberculosis, just as they serve as convenient units for discovering cases. Every student should be examined before graduating and certainly before working papers are granted.

Of course, no child with positive sputum should be allowed to attend school lest he infect his fellows.

"Every available resource than can be spared should be devoted to the public school field, for in the control of tuberculosis our hope of success in the years to come rests largely upon the care of the youths of today."—*Health in High Schools*, Walter L. Rathbun, Nat'l. Tuberc. Assn.

ALTERNATING PNEUMOTHORAX: I. D. Bronfin, M.D., Denver, Colo. (Nat'l Tuberc. Assn.—Trans. Twenty-Sixth Annual Meeting, Memphis, Tenn., 1931). The principles governing pneumothorax therapy have undergone striking modification during the past ten years. The indications for this form of treatment were at first confined to strictly unilateral cases. Experience has shown that proliferative and even fibrocaseous processes in the good lung, when not too extensive, improve after a satisfactory collapse of the more involved lung. The further ob-

servation that a moderate reduction in lung mobility, instead of complete collapse, does not lead to bad results as was at first believed, but on the contrary brings about definite improvement, led some physicians to the rather heroic measure of simultaneous bilateral compression.

A review of the literature on simultaneous bilateral pneumothorax discloses that the encouraging results reported are not entirely conclusive, because of the short period of observation. The work of Kinsella and Mattill convinces one that bilateral pneumothorax is feasible in a certain number of cases and for definite emergencies, but leaves one in doubt as to the efficiency of this treatment. Kerzman reports 19 cases, of which several showed marked clinical improvement, but issues a warning that the procedure is justified only when all other methods have failed. On the other hand, the need for resorting to alternating or successive pneumothorax will continue to increase, because with the increase of the use of pneumothorax in the treatment of cases with bilateral lesions, reactivation of the old lesion or progression of the disease in the untreated lung will not be an uncommon complication. Also a large number of patients with apparently unilateral disease develop contralateral lesions during pneumothorax therapy.

Six cases are reported in which alternating pneumothorax was used and the clinical course was observed for from two and one-half to seven years.

Case I. (Example) The indication was an acute contralateral involvement twenty-one months after the first pneumothorax was instituted. The second pneumothorax was maintained for twenty-six months. The lesions on both sides were of the exudative variety and the result was an apparent arrest of the disease.

Conclusion: Many patients who develop contralateral disease during pneumothorax therapy or have bilateral disease equally distributed, can be treated successfully by means of alternating pneumothorax, and in some instances will accomplish a complete arrest of the disease.

E. H. JORRIS.

PEDIATRICS

THE THERAPEUTIC USE OF MIXED RESPIRATORY VACCINES: Roy P. Forbes, M.D., Denver, Colo. (*Arch. of Ped.*, January, 1931, Vol. XLVIII, No. 1). The status of vaccine therapy seems to be as dubious and hazy now as it was one or two decades ago.

Davis concurs in the belief that prophylactic immunization against colds is not of value in early childhood. He asserts, however, that the procedure apparently is of value for older children and adults.

It was quickly noted that cases in which cough accompanied the upper respiratory infection were frequently relieved after one to three injections. Where there was clinical evidence of sinusitis, the nasal discharge sometimes at first increased, then subsided.

Vaccine therapy was reserved for those cases which suffered a relapse and had cough as a prominent symptom. It often gave prompt relief to these children.

Usually one injection was sufficient to loosen and relieve the dry cough, and in many instances children with severe bronchitis and early broncho-pneumonia made a prompt recovery in 48 hours. However, the other complications, such as adenitis, otitis, and mastoiditis, were apparently unaffected by the vaccine. They found that a total of 211 house calls were necessary for the vaccine-treated cases, as compared with 300 house calls on the control series in 100 cases each. It is of interest to note that no case in the vaccine series developed either bronchitis or pneumonia after treatment was begun, whereas in the control series five children developed pulmonary complications while under careful medical supervision.

The therapeutic value of the vaccine in respiratory infections has not been widely demonstrated, and there are, as yet, comparatively few reports of such usage, but the reports which have been made are generally favorable. The writer's experience leads him to conclusions highly favorable to the use of respiratory vaccine as a therapeutic agent in certain infections of the respiratory tract.

R. N. ANDREWS, M.D.

ACUTE INTUSSUSCEPTION IN INFANCY: OPERATIVE AND NON-OPERATIVE TREATMENT: David M. Siperstein, M.D., Minneapolis (*Arch. of Ped.*, January, 1931, Vol. XLVIII, No. 1). Intussusception is typically a disease of infancy. It is an acute condition requiring prompt recognition and prompt treatment. It occurs chiefly during the first year of life, especially between the fourth and tenth month.

Koch and Oerum feel that this condition is caused by a preliminary circular contraction of the gut followed by an overlapping. Fraser considers that abnormal and irregular peristaltic rhythms are responsible. He finds that, "if the ileocecal segment is provided with a loose mesenteric attachment, the occurrence of a peristaltic rush is likely to be followed by the development of intussusception."

Perrin and Lindsay offer the most logical explanation thus far advanced and accompany it by histological proof. They point out the obvious development of lymphoid tissue at the ileocecal valve and its rapid subsidence during the second year of life. The incidence of intussusception is directly proportionate to the development of the lymphoid tissue in this particular area. This theory explains the characteristic age incidence, and it explains the frequency of the ileocecal type.

Acute intussusception is characterized by four cardinal symptoms: The first of these is abdominal pain; the second, vomiting; the third, blood and mucus in the stool; the fourth, a palpable tumor mass.

A comparison of the mortality statistics with various forms of treatment tends to show that, with proper selection and precautions, mechanical interference gives excellent results.

In the hands of a surgeon skilled in pediatric procedure, disinvagination of an acute intussusception is a relatively simple and safe procedure. In any question-

able case, this might be the method of choice. Early diagnosis and prompt treatment should definitely lower the mortality of acute intussusception. The surgical and non-surgical procedures are not competitive methods. They should complement one another under the careful supervision of the trained pediatrician and surgeon.

R. N. ANDREWS, M.D.

ACUTE PHOSPHORUS POISONING: Eleanor M. Humphreys, B.A., and Bela Halpert, M.D., Chicago (Amer. Jour. of Diseases of Children, Vol. 41, No. 2, February, 1931). The incidence of phosphorus poisoning has decreased greatly in recent years. Undoubtedly the decrease is due mainly to the prohibition of the manufacture and sale of yellow phosphorus matches. In this country there are still two easily available sources of yellow phosphorus: certain brands of rat and roach paste and certain types of fireworks.

In communications to the editor of the Journal of the American Medical Association, Stacy, Busey, and McCornack discussed the case of the fifteen months old son of Dr. Stacy, who ate the unburned remnant of a Devil-on-the-Walk and died four days later. Corwin recorded the death of a three year old girl, forty-six hours after placing a Spit-Devil in her mouth.

The risk of acute phosphorus poisoning has been decreased but not eliminated by the prohibition of the manufacture and sale of yellow phosphorus matches.

The ingestion of fireworks containing phosphorus is a cause of acute phosphorus poisoning in children.

A review of the medical literature reveals a total of twelve reported cases. There is evidence that this figure does not give a true idea of the frequency of phosphorus poisoning caused by fireworks.

The commonly implicated agent is a single type of fireworks, variously known as "Son-of-a-Gun," "Devil-on-the-Walk," and "Spit-Devil."

R. N. ANDREWS, M.D.

SURGERY

THE MIXED TUMORS OF THE SALIVARY GLANDS. D. H. Patey (The Brit. Jour. of Surg., October, 1930, p. 241). A study of fifty-five cases of mixed tumors of the salivary glands treated at the Middlesex Hospital since 1919.

Based upon the histological appearance of the tumors, a division is made into four types: (1) "typical" tumors, (2) cellular and not well differentiated, (3) cellular but well differentiated, (4) cellular and not well differentiated and cells showing irregularity and nuclear changes. In the first group are cases with relatively few cells, which are small, irregular and deeply staining and with an abundance of myxomatous tissue. In the second group are those in which there is a relative abundance of the cellular element. In the third group the cells are arranged in acini or ducts much like nests of fairly normal glandular tissue. In the fourth group are cases showing malignant tendencies.

The derivation of the tumors is believed to be from

epithelial tissue entirely, instead of being mixed epithelial and mesenchymal tissue. The myxomatous portion is believed to be a derivation or product of epithelial cells.

In this series of fifty-five cases, thirty-eight were in the parotid gland, six in the submaxillary gland and five in the palate. Six were in other regions about the face.

Recurrence after operation was present in eleven out of the thirty-eight parotid cases and in other regions the percentage was about the same. One recurrence occurred as late as nineteen years after operation.

The recurrent tumor was encapsulated or infiltrating. There was no evidence of a greater tendency to malignancy in the recurrent cases. The group showing malignant tendencies, i.e., group four, definitely had a higher percentage of recurrences. In the other three groups the recurrences occurred in about equal percentages.

The causes of the recurrences were two: incomplete removal and development of new and independent tumors. The tumors not infrequently showed small daughter tumors on the edge, which could easily be left behind.

The treatment suggested was surgical removal although the more cellular varieties might give good results by treatment with radium.

R. W. KOUCKY, M.D.

PUSH FLUIDS: G. De Takats, M.D., F.A.C.S., Chicago, Ill. (Amer. Jour. of Surg., No. 1, Vol. XI, January, 1931). Under the above heading, the author treats the subject of the giving of fluids after operation; because of the fear of dehydration, it has become a routine to order fluids to be pushed after operation. While in general this is correct, yet one must individualize the case, and take into consideration the mechanics of water retention and water excretion, and regulate the use of fluids accordingly. It is possible to overload the system, and develop a water intoxication, which in itself is detrimental.

The author reviews the movement of water through the system (1) from the standpoint of cardiac action, (2) from the condition of the kidneys, (3) from the condition of salt retention, and (4) from the pathologic changes in tissues.

Realizing that after an abdominal operation the intestines frequently contain fluid, one does not get sufficient absorption of fluids by rectal drip in many of these cases, and may only aggravate the discomfort of the patient. Therefore, the giving of fluids through the skin, or intravenously, is preferable. Then also the absorption of dextrose per rectum is often very little, which, while harmless in itself, yet may give a false sense of security by the fact that one really is not supplying dextrose to the system; on the other hand, insulin used under such circumstances may cause an insulin toxemia.

To sum up the article, the author calls attention to the water balance as it exists in the individual patient, rather than in the normal person, keeping these facts

in mind in applying one's use of fluids. In general one can say that, where an oral intake of fluids after operation is prevented, a satisfactory water balance can be maintained with 3,000, and not more than 4,000, c.c. of fluids. Much of this fluid can be given under the skin in the form of 5 per cent dextrose solution, but in some cases the intravenous drip of 10 per cent dextrose solution is indicated. If the salt balance is disturbed, Ringer's solution under the skin is preferable.

The order to push fluids should not be given unless one checks up the results of this pushing, and maintains the proper physiological balance.

A. E. SOMMER, M.D.

SPONDYLOLISTHESIS: Samuel Kleinberg, M.D., (*Amer. Jour. Surg.* Vol. X, Dec., 1930, p. 521). The author reports four cases of spondylolisthesis in which the dislocation of the fifth lumbar vertebra was due to congenital deformity of its posterior arch. The most important congenital anomaly in relation to spondylolisthesis is a congenital cleft in the pedicles due to lack of fusion of the superior and inferior articular processes of the fifth lumbar vertebra on one or both sides. This defect is filled in by connective tissue, and the vertebral body and neural arch are held together only by ligaments which may be stretched or torn by trauma. This was the mechanism of the dislocation in two of the author's cases.

An increase in the lumbosacral angle is another factor in the production of spondylolisthesis. Combined with this there may be a change in the shape of the superior margin of the sacrum in which the upper surface is convex and the anterior half slopes downward and forward. This condition tends to initiate subluxation of the last lumbar vertebra during ordinary occupation. Another factor is an alteration in the plane of the lumbosacral joints which may be oblique or horizontal and thus predispose to subluxation. Elongation of the laminae was the cause of slipping in two of the author's cases.

Most authors are agreed that trauma is a prominent factor in the etiology of the majority of the cases. A single severe trauma or a succession of injuries may produce the condition in those that are predisposed by congenital malformations.

Several plates illustrate the condition and show the value of X-ray examination.

JACOB SAGEL, M.D.

BRINKLEY'S BROADCASTING STATION

The Federal Radio Commission refused to renew the broadcasting license of Station KFKB, of Milford, Kansas, operated by John R. Brinkley, because it was operated mainly in the interest of Brinkley and his associates rather than in the interest of the public. Brinkley appealed the case to the courts but this appeal has been denied. (*Jour. A. M. A.*, February 14, 1931, p. 547.)

BOOK REVIEWS

Books listed here become the property of the Ramsey and Hennepin County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

MODERN METHODS OF TREATMENT. (Fourth Edition). Logan Clendening, M.D. 819 pages. Illus. Price, \$10.00. Saint Louis: The C. V. Mosby Company, 1931.

ABDOMINO-PELVIC DIAGNOSIS IN WOMEN. Arthur John Walscheid, M.D. 1000 pages. Illus. Price, \$12.50. Saint Louis: The C. V. Mosby Company, 1931.

HOW IT HAPPENED. A. G. Bettman, M.D., F.A.C.S. 110 pages. Price, \$1.00. Philadelphia: F. A. Davis Company, 1931.

COMMON CONTAGIOUS DISEASES. Stimson. 353 pages. Illus. Price, \$3.75. Philadelphia: Lea & Febiger, 1931.

GENERAL MEDICINE, PRACTICAL MEDICINE SERIES. Weaver, Brown, Minot, Stroud, Brown. 848 pages. Price, \$3.00. Chicago: The Year Book Publishers, 1930.

CANCER. Willy Meyer. 427 pages. Illus. Price, \$7.00. New York: Paul B. Hoeber, 1931.

TEXTBOOK OF HUMAN EMBRYOLOGY. Cleveland Sylvester Simkins, Ph.D. 469 pages. Illus. Price, \$4.50. Philadelphia: F. A. Davis Company.

DISEASES OF THE GENITO-URINARY SYSTEM IN INFANCY AND CHILDHOOD (Clinical Pediatrics, Volume XIX). Henry F. Helmholz, M.D., and Samuel Amberg, M.D. Supervising Editor, Royal Storrs Haynes, Ph.B., M.D. 239 pages with contents, 27 illustrations, 43 cases, references at the end of each of the eleven chapters, and an index. Price: \$85.00 per set of 20 volumes and general index. Sold only in sets. New York, London: D. Appleton & Co., 1930.

This volume reads like all of the highly dependable, well organized, very helpful works of the authors. It combines the experimental with the clinical; is clearly lucid, concise and to the point. The references are very complete and cover even the most recent contributions. The illustrations and cases are very clarifying. It is to be highly endorsed and recommended in its entirety for the student, pediatrician and general practitioner. There is a human key-note throughout—let pediatricians be keenly alert to safeguard the child by a correct diagnosis for the future health of the adult.

LILLIAN L. NYE, M.D.

GENERAL MEDICINE: The Practical Medicine Series. Edited by George H. Weaver, Lawrason Brown, George R. Minot, William B. Castle, William D. Stroud, and Ralph C. Brown. Cloth. Price \$3. Pp. 830. Chicago: The Year Book Publishers, Series 1930.

The general arrangement of the volumes, eight in number, in this series, is familiar to the profession. The book is divided into five parts. The first, on Infectious Diseases, emphasizes the newer diseases, as psittacosis, undulant fever, and tularemia; aspects of newer methods in treatment, as the use of whole blood in measles, immune serum in poliomyelitis, and the prevalence of epidemic diseases in various parts of the country. Part 2 takes up diseases of the chest (excepting the heart). Home and sanatorium treatment of tuberculosis is discussed, as are special measures, vaccine, diet, rest, lung collapse, and diagnosis. The bulk of the section is on tuberculosis. Part 3 reviews the years' literature on the blood and blood-making organs. There is considerable discussion of the reticulocyte count in health and disease; of nomenclature in the anemias, of anemia as a deficiency disease, of the extent and nature of the response, in anemia, to liver and liver extract, of transfusion, and some of the rarer blood diseases. A most interesting section. Part 4 deals with diseases of the heart and blood vessels. The discussion follows the general headings of etiology, anatomical considerations, physiological abnormalities, treatment, and miscellaneous topics. The final section

is devoted to diseases of the gastro-intestinal tract, and diseases of metabolism.

E. C. HARTLEY, M.D.

ARTERIAL HYPERTENSION. E. J. Stieglitz, M.D., Assistant Professor of Clinical Medicine, Rush Medical College, Chicago. Price \$5.50. New York: Paul B. Hoeber, 1930.

The presentation of a subject the etiology of which is practically unknown is here well done. The author has exhaustively gathered together facts pertaining to this condition, and has done much to present the subject in a clarified manner which will be appreciated by the general practitioner. It is essentially a careful review of the literature with a resulting presentation of our present knowledge of the subject, and indications of lines of research which should be undertaken.

The underlying anatomy, and physiology, and the pathogenesis of hypertension is given satisfactorily. The difficulty of treatment is well recognized, and the views of various workers are given with remarks concerning the author's opinion of them. The question of hypertension in pregnancy is adequately considered, and the problem of the management of the late results of the condition, cardiac and renal, is discussed without noteworthy alterations from accepted opinions.

Summarizing, the author has presented a live subject in a most satisfactory manner, and the monograph, well written, should be of real interest to the practitioner.

JOSEPH A. BORG, M.D.

WANTED—Salaried appointments for Class A Physicians in all branches of the medical profession. Let us put you in touch with the best man for your opening. Our nation-wide connections enable us to give superior service. Aznoe's National Physicians' Exchange, 30 North Michigan Ave., Chicago. Established 1896. Member The Chicago Association of Commerce.

WANTED—Part time appointment by Minneapolis physician. Address D-125, care of MINNESOTA MEDICINE.

PHYSICIAN'S OFFICE FOR RENT—Best location Midway district, corner Thomas and Hamline, Saint Paul. Rent \$25.00 a month. Inquire at dentist's office.

WANTED—Recent (German speaking) graduate to take over my practice. Must be of good habits and well qualified. Nothing to sell. Address D-124, care of MINNESOTA MEDICINE.

FOR SALE—Minnesota—In town of 2500, rich German community, on Jefferson and Coast to Coast Highways, well established practice, five bed hospital, residence combined, well equipped office. Will consider partner with small investment, or sell at sacrifice a \$15,000 yearly cash practise. Reason: Poor health. Address D-128, care MINNESOTA MEDICINE.

WANTED—Position by experienced medical secretary. Graduate Medical Secretarial Course, Rochester, Minnesota. Address D-127, MINNESOTA MEDICINE.

POSITION WANTED—By Laboratory Technician skilled in Physiotherapy, X-Ray, Basal Metabolism. College Graduate. Hospital training and experience. Address D-126, c/o MINNESOTA MEDICINE.

FOR SALE—Lease of office, 516 La Salle Building, Minneapolis, and complete office and X-ray equipment of the late Dr. H. N. Meleck, including goodwill and referred work from six industrial and insurance firms. Office may be inspected any time during the day. Telephone Geneva 5592.

FOR SALE—All furniture and equipment for modern seven room hospital. In splendid condition. Bargain if interested. Address D-129, care MINNESOTA MEDICINE.

INSTRUMENTS FOR SALE

An exceptionally complete set of surgical instruments and office equipment, property of the late Dr. Lyng, is for sale. Especially suitable for hospital. May be seen at 5145 Woodlawn Avenue, Minneapolis. Telephone Dupont 8948.